DELPHI

FACILITY INVESTIGATIVE REPORT

APPENDIX A
SECTION 1

WORK PLAN
SITE ASSESSMENT
FOR TANK ABANDONMENT
DELCO REMY SITE
ANAHEIM, CALIFORNIA
FOR DELCO REMY

JOB NO. 14197-014-128
February 4, 1991

DAMES & MOORE

D & M

WORK PLAN
SITE ASSESSMENT
FOR TANK ABANDONMENT
DELCO REMY SITE
ANAHEIM, CALIFORNIA

INTRODUCTION

This work plan outlines Dames & Moore's program for conducting a site assessment in the vicinity of a 15,000-gallon underground storage tank (UST) at the above-referenced site. The site is located at 1201 North Magnolia Avenue, Anaheim, California (Figure 1). The results of the site assessment will be used to develop an abandonment program for the 15,000-gallon UST.

SITE DESCRIPTION

Delco Remy manufactures lead-acid batteries for motor vehicles and marine vessels at the site. The facilities at the site consist of a main manufacturing building, several smaller buildings, and related support operations (Figure 2).

Delco Remy's manufacturing operations produce an acidic process wastewater stream which contains elevated concentrations of lead. This stream is treated onsite, combined with the facility's sanitary sewer effluent, and discharged to the Orange County Sanitation District under Permit No. 3-175.

The treatment facility consists of one holding basin followed by three neutralizing basins in series (Figure 3). The wastewater entering the holding basin has a pH of about 2. The wastewater then passes through the three neutralizing basins where sodium hydroxide is added. The sodium hydroxide neutralizes the acid in the wastewater, which causes the lead to precipitate. The lead precipitate remains in solution as a fine suspended solid. The solution is then pumped from the third basin at a pH of 7 to 8.

The wastewater is pumped through a pressure leaf filter where most of the suspended lead is removed. Sludge from the filters, which consists of the removed lead and the spent diatomaceous earth filter medium, is periodically removed and transported with a hazardous waste manifest to a Class I landfill.

The filtered water flows through a flume near the filter press. The filtered water is monitored at regular intervals for lead and continuously for pH. The water is then discharged to the sanitary sewer. The Orange County Sanitation District's permitted limits of lead and pH in the sewer effluent is 0.21 pounds of lead per day and a pH between 6.0 and 12.0. If the filtered water does not meet the effluent requirements, then it is diverted back to the wastewater treatment system. To date, the lead concentrations in the filtered water have averaged 0.05 mg/L and the pH has been maintained within 6.8 to 7.8.

BACKGROUND

A 15,000-gallon underground storage tank was installed at the site in 1977. Some of the filtered water entering the sanitary sewer was diverted to the UST. Water in the UST was then reused for conservation purposes. The UST system did not work effectively and Delco Remy discontinued its use in 1988.

From 1986 to 1988, Dames & Moore installed four ground-water monitoring wells (MW-1 through MW-4) as part of a monitoring program at the site (Figure 2). Shallow ground water in the wells is about 30 feet below ground surface. The ground-water flow direction is to the southwest with a gradient of about 0.0065% (Dames & Moore, 1990). One of the wells (MW-3) was installed about fifteen feet southeast of the 15,000-gallon UST (Figure 3). Ground water was last sampled from the well in 1988. Laboratory analyses showed lead concentrations of 0.012 ppm and a pH of 7.36 in the ground-water sample (Dames & Moore, 1988). Title 22 of the California Administrative Code states drinking water standards for lead as 0.05 ppm.

Since the 15,000-gallon UST contained only processed wastewater for a short period of time and is not known to have leaked, soil around the UST is not expected to have been impacted by elevated lead concentrations. As shown in Figures 3 and 4, the UST is located in close proximity of the waste treatment holding basin. Attempting to remove the tank could undermine the structural integrity of the basin. Consequently, Delco Remy plans to abandon the 15,000-gallon UST in place. Delco Remy is currently considering other alternatives for conserving their process water.

PURPOSE AND SCOPE OF SERVICES

Dames & Moore plans to conduct a limited site assessment to evaluate the possible presence of elevated lead concentrations in the soil around the 15,000-gallon UST, near the intake and discharge piping above the UST, and along the underground pipelines. The results of the assessment will be used to develop an in-place abandonment program for the UST. The scope of services proposed to meet these objectives will include the following:

- develop a site specific health and safety plan;
- hand auger four slant soil borings at an angle of 30 degrees from vertical to beneath the 15,000-gallon UST at a slant depth of 15 feet;
- hand auger two vertical soil borings near the intake and discharge ports of the UST to a depth of three feet;

- o hand auger an additional vertical soil boring along the underground filtered water lines between the valve box and UST intake;
- o collect soil samples from every five feet in the slant borings and from the base of the vertical borings for laboratory analysis;
- o analyze each soil sample for soluble lead;
- o collect a ground-water sample from Well MW-3;
- o analyze the water sample for lead; and
- o prepare a report discussing our results and a work plan for abandoning the 15,000-gallon UST.

The above procedures are based on UST closure requirements outlined in Title 23, Chapter 16 of the California Code of Regulations. The soil boring locations are shown on Figure 3. Cross sections showing the relative positions of the UST, the proposed soil borings, and sampling locations are shown on Figure 4.

FIELD INVESTIGATION METHODS

Health and Safety Plan

Prior to initiating the field investigation, Dames & Moore will prepare a site specific Health & Safety plan to:

- o identify and describe potentially hazardous substances which may be encountered during field operations;
- o specify protective equipment and clothing for onsite activities; and
- o outline measures to be implemented in the event of an emergency.

Dames & Moore field personnel will be required to review the Health & Safety plan prior to commencing with the field procedures.

Permit Applications

Prior to conducting the field operations, Dames & Moore will obtain permits for hand augering borings at the subject site. The permits will be obtained from the Orange County Health Care Agency.

Hand Auger Borings

Prior to hand augering, sections of concrete will be cut and removed. Soil borings will then be hand augered to the specified depths (Figure 4). The hand auger will consist of a 4-inch-diameter, 6-inch-long auger barrel connected to extensions of various length. The auger will be advanced manually into the soil by turning a "T" handle at the end of the extensions. An AMS Core sampler will be driven into the soil using a manually operated slide hammer to collect a soil sample at every five feet and the base of the boring. The sampler, containing a 3 1/2-inch-diameter by 6-inch-long stainless steel sample sleeve, will be driven about 8 to 10 inches into the soil.

Upon retrieval of the sampler, the sample sleeves will be separated and the exposed soil on each end of the sleeve will be covered with Teflon sheeting, and fitted with plastic end caps. Sample labels will be affixed to the end caps. The sealed and labeled samples will be placed in an ice chest containing blue ice and transported to a California Depart of Health Services (DHS)-Certified Testing Laboratory. Chain-of-custody records will be maintained throughout the sampling program.

Ground-Water Sampling

Prior to sampling, Well MW-3 will be purged of approximately three well volumes and ground-water samples will be collected in accordance with applicable sampling protocols described in the RCRA Ground-Water Monitoring Technical Enforcement Guidance Documents, USEPA, 1986.

Following the purge period and after the well has recovered to at least 80% of its static water level, samples will be collected for laboratory analysis by lowering a disposable polyethylene bailer approximately one to two feet below the air-water interface. Prior to sampling, the bailer will be fitted with a low flow velocity sampling port to minimize sample turbulence. The bailer will be sanitized prior to use by washing it in a solution of Alconox, rinsing with tap water, and a final rinsing with deionized water.

The sample bottles, once filled and preserved as required, will be properly labeled. The label will include well identification number, sample number, data and time sampled, job number, site/client name and location, and sampling personnel's initials. The sealed and labeled samples will be placed in an ice chest containing blue ice and transported to a California DHS-Certified Testing Laboratory. Chain-of-custody records will be maintained throughout the sampling program.

Chain of Custody Procedures

Chain-of-custody procedures will be maintained for the samples collected. This form will be filled out by the sample collector before releasing the sample for transportation. The chain-of-custody form will be routed with the samples through transportation and analysis. Completed chain-of-custody forms will be returned to Dames & Moore along with the results from the analytical laboratory. These forms will be retained by Dames & Moore in the central job files.

Waste Management

Soil cuttings, rinse water, and purge water generated during hand augering and equipment cleaning will be stored onsite in DOT-approved 55-gallon drums. Proper handling procedures for the soil and water will be evaluated upon receipt of the laboratory results.

ANALYTICAL PROGRAM

Laboratory analyses of select soil and ground-water samples will be performed by a California DHS-certified laboratory. Soil samples will be analyzed for soluble lead by Environmental Protection Agency (EPA) Method 7420. The ground-water samples from Well MW-3 will be analyzed for lead by EPA Method 7421 and for pH by EPA Method 9040.

REPORT

Based on the results of the site characterization, Dames & Moore will prepare a report summarizing the soil stratigraphy, field and laboratory procedures, laboratory results, and our conclusions. The report will also contain a work plan to abandon the 15,000-gallon UST. The work plan will outline our scope of work along with a detailed description of our planned field procedures for abandoning the 15,000-gallon UST.

Dames & Moore believes that this work plan provides a logical method to assess soil and ground-water conditions around the 15,000-gallon UST for the purpose of abandoning the UST. Modifications in the program may be required to accomplish the objectives of this project. In such cases, these modifications will be discussed with Delco Remy and the Orange County Health Care Agency prior to implementation. Please do not hesitate to contact us if you have questions regarding this work plan.

The following are attached and complete this work plan:

References
Figure 1 - Vicinity Map
Figure 2 - Facility Layout
Figure 3 - Water Treatment Facility Layout
Figure 4 - Cross Sections A-A' and B-B'

Respectfully Submitted,

DAMES & MOORE

E. Essi Esmaili, Ph.D., R.G.
Associate

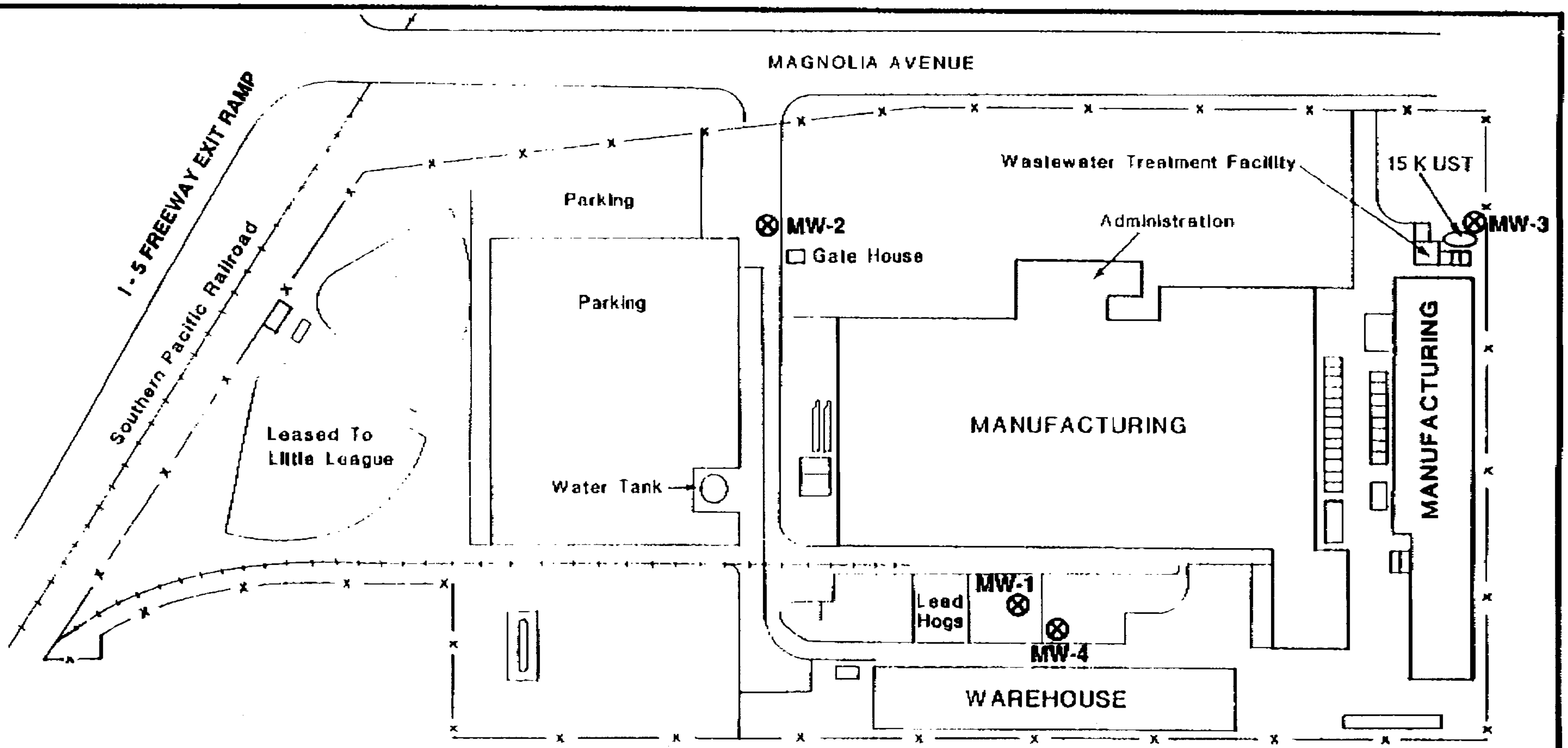
Taras B. Kruk
Project Geologist

tk:DELCOTNK.WP1

REFERENCES

Dames & Moore, Ground-Water Investigation, For Delco Remy, Anaheim, California, dated November 1, 1988;

Dames & Moore, Continued Investigation of Ground-Water Conditions, Delco Remy Facility, Anaheim, California, For Delco Remy, dated February 21, 1990.



EXPLANATION:

PROPERTY LINE

RAILROAD LINE

15 K UST 15,000 GALLON UNDERGROUND STORAGE TANK

MW-4 ⊗ GROUND-WATER MONITORING WELL

FACILITY LAYOUT

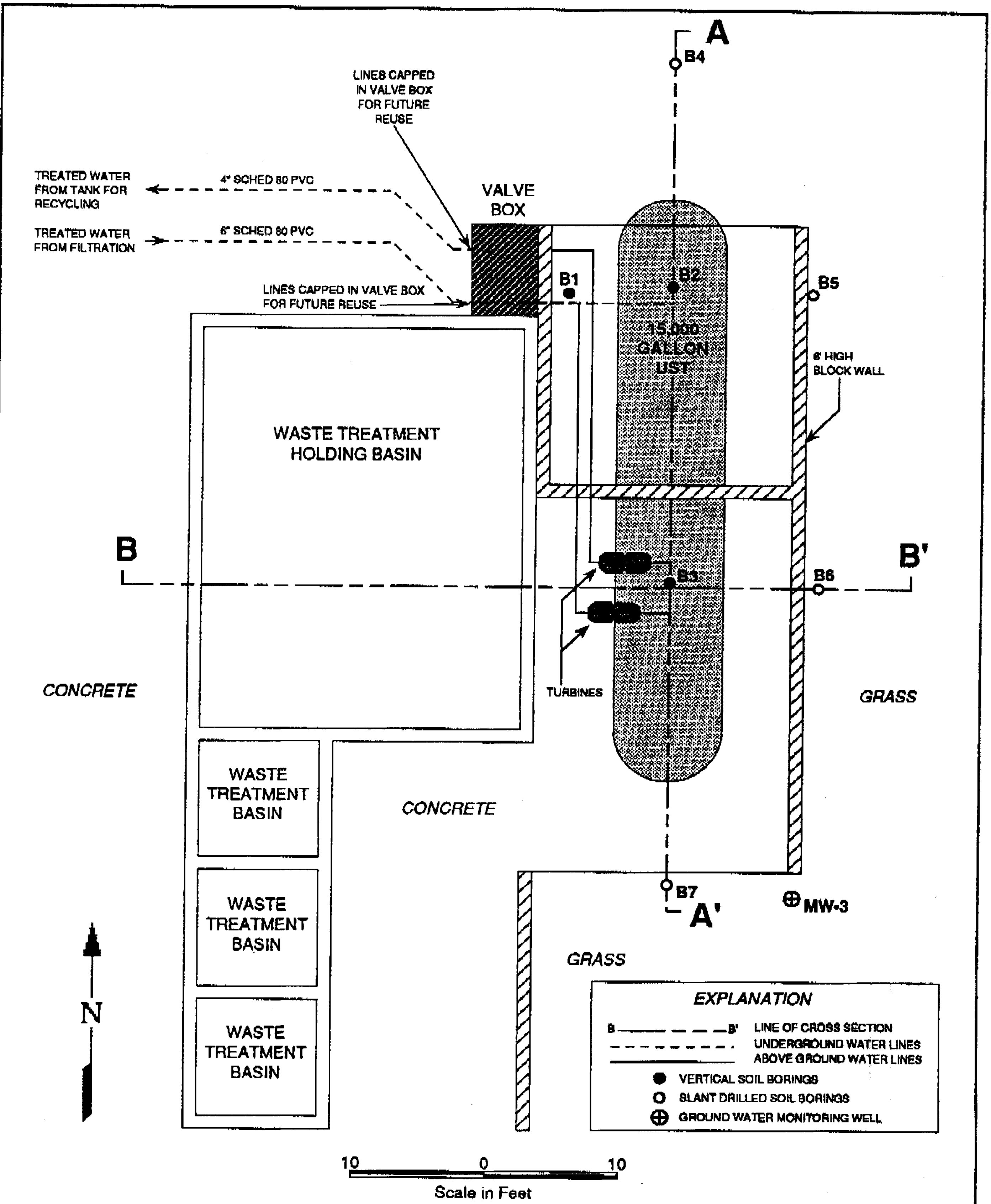
DELCO REMY MANUFACTURING FACILITY
1201 NORTH MAGNOLIA AVENUE
ANAHEIM, CALIFORNIA
For Delco Remy

N

0 100 200

APPROXIMATE SCALE IN FEET

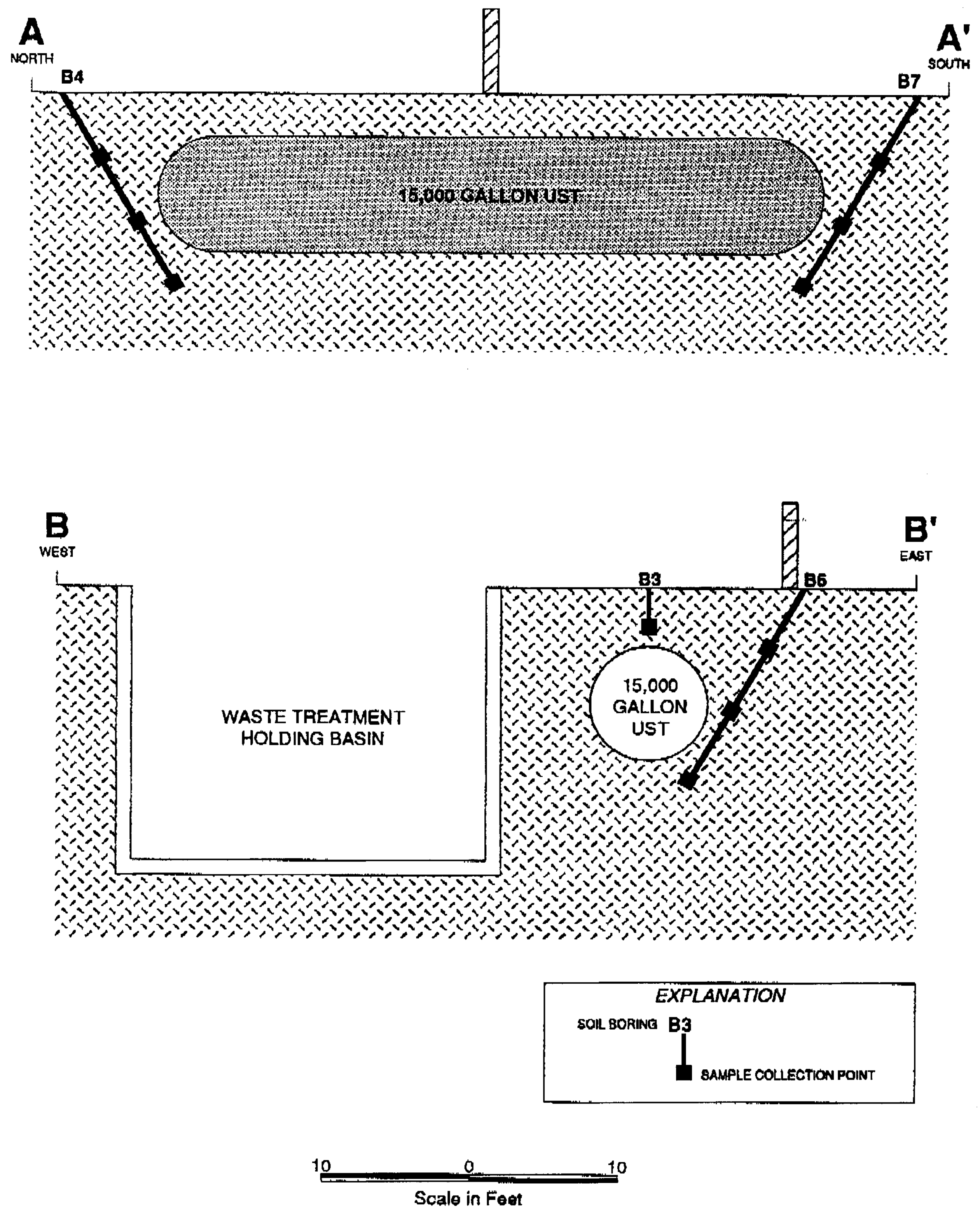
Dames & Moore
FIGURE 2



WATER TREATMENT FACILITY LAYOUT

DELCO REMY MANUFACTURING FACILITY
1201 NORTH MAGNOLIA AVENUE
ANAHEIM, CALIFORNIA
For Delco Remy

Dames & Moore
Figure 3



CROSS SECTIONS A-A' & B-B'

DELCO REMY MANUFACTURING FACILITY
1201 NORTH MAGNOLIA AVENUE
ANAHEIM, CALIFORNIA
For Delco Remy

Dames & Moore
Figure 4

To Tom Tatnall

13 pages to follow

Fr: Tim Renner - 317-508-8268

old UST info

U.S. Environmental Protection Agency
Office of Waste Programs Enforcement
Contract No. 68-W9-0009

DELCO REMY DIVISION
GENERAL MOTORS CORPORATION
ANAHEIM, CALIFORNIA

VISUAL SITE INSPECTION/SAMPLING VISIT
FINAL REPORT

TES 12

Technical Enforcement Support at Hazardous Waste Sites Zone IV Regions 8, 9, and 10

prc

PRC Environmental Management, Inc.

Final

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105
July 15, 1992

Re: GMC Delco Remy
EPA ID# CAD 008 323 396

Mr. Ken Rayle
GMC Delco Remy
1201 North Magnolia Avenue
Anaheim, CA 92803-3190

Dear Mr. Rayle:

As you know, PRC Environmental Management, Inc. recently conducted a Visual Site Inspection/Sampling Visit (VSI) of the GMC Delco Remy facility on behalf of the Environmental Protection (EPA). During this February 1992 effort, PRC gathered information in accordance with Section 3007 of the Resource Conservation and Recovery Act (RCRA) of 1976. Pursuant to EPA's June 17 letter to your attention, GMC Delco Remy was given a fifteen day period to review the VSI Report to determine whether it contained any confidential business information (CBI). Since the fifteen day period has ended and since you have verbally indicated that the report did not contain any CBI during our July 14 telephone conversation, EPA may now provide copies of the report to state and local agencies and, upon request, to the public.

A copy of the final VSI report is enclosed for your records. This final version reflects minor changes based on technical comments you provided during our July 14 telephone conversation. Thank you for your assistance in ensuring the accuracy of this report and your cooperation during the VSI. If you have any further questions regarding this report, please contact me at (415) 744-2039.

Sincerely,

[illegible]
RCRA Corrective Action Section

Enclosure

cc: John Scandura - DTSC
Dave Dixon - OCHCA
Joe Aldem - Santa Ana RWQCB

TABLE OF CONTENTS

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

1.0 INTRODUCTION

PRC Environmental Management, Inc. (PRC) received Work Assignment No. R09046 from the U.S. Environmental Protection Agency, Region 9 (EPA) under Technical Enforcement Support Contract No. 68-W9-009 (TES 12). The work assignment called for PRC to conduct a visual site inspection (VSI) and sampling visit (SV) at the General Motors Corporation Delco Remy Division facility (Delco Remy) in Anaheim, California (EPA ID No. CAD008323396). The purpose of the work assignment was to collect and analyze soil samples to determine the extent of lead contamination and to further evaluate waste management practices at the facility.

The VSI/SV was conducted February 25 through February 28, 1992, and began with a brief meeting between the PRC inspection and sampling team and Delco Remy representatives. The attendees of this meeting and their affiliations are listed below:

Ken Rayle	Delco Remy	Environmental and Hazardous Waste Manager
Ron Burk	Delco Remy	Engineering Assistant, Environmental and Hazardous Waste Specialist
Steve Keil	Delco Remy	Assistant Environmental and Hazardous Waste Manager
Bob Stewart	Jones, Day, Reavis & Pogue	Attorney (representing Delco Remy)
Andrew Barnes	Dames & Moore (Delco Remy's Consultant)	Geologist
Santiago Lee	PRC Environmental Management, Inc.	Project Manager
Lizabeth Roman	PRC Environmental Management, Inc.	Chemist/Field Sampler
Richard Vernimen	PRC Environmental Management, Inc.	Environmental Toxicologist/ Field Sampler

2.0 SITE DESCRIPTION

This section describes the Delco Remy site's location as well as the sampling conditions encountered at the site at the time of the VSI/SV.

2.1 SITE LOCATION

The Delco Remy facility is located at the following street address:

1201 North Magnolia Avenue
Anaheim, CA 92083-3190

The facility is located at the following coordinates: Township 4 South, Range 11 West, Section 1, in relation to the San Bernardino Base Line and Meridian; Latitude: 33° 51' 5.0", Longitude: 117° 58' 37.0" (Figure 1).

Delco Remy originally began manufacturing lead acid automotive batteries on an 88-acre site in 1954 (E&E, 1990). The facility now operates on 27 acres. The facility is located in an industrial park, but the surrounding area is zoned residential and commercial. The northernmost portion of the property includes two baseball fields that are leased to and used by the local Little League baseball organization (EPA, 1991). The baseball fields are adjacent to a line of the Southern Pacific Railroad and the interchange between the Artesia and Santa Ana freeways (highways 91 and 5 respectively; see Figure 1).

2.2 SITE SAMPLING CONDITIONS

Surface and near-surface soil sampling locations at the Delco Remy facility were limited to the facility's northwest field and the baseball fields, since other potential sampling locations, identified in EPA's October 24, 1991 scope of work, were covered with asphalt or concrete and were unsuitable for hand auger sampling. The excluded areas originally proposed for sampling included the: (1) wastewater treatment area, (2) baghouse areas, (3) oil house area (building for clean-up of oil contaminated equipment, and (4) hazardous waste drum storage area. Other waste management areas at Delco Remy also were covered by concrete or asphalt and were not accessible for hand auger soil sampling.

Delco Remy facility personnel were very cooperative in providing access to the site and logistical support to the PRC sampling team. Delco Remy's management of the investigation-derived wastes, that included soil cuttings, decontamination water, and personal protective equipment, was a specific example of the facility's assistance in this project.

Health and safety concerns during soil sampling procedures focused on preventing exposure to potentially contaminated soils by careful handling of sampling equipment and the use of protective gloves.

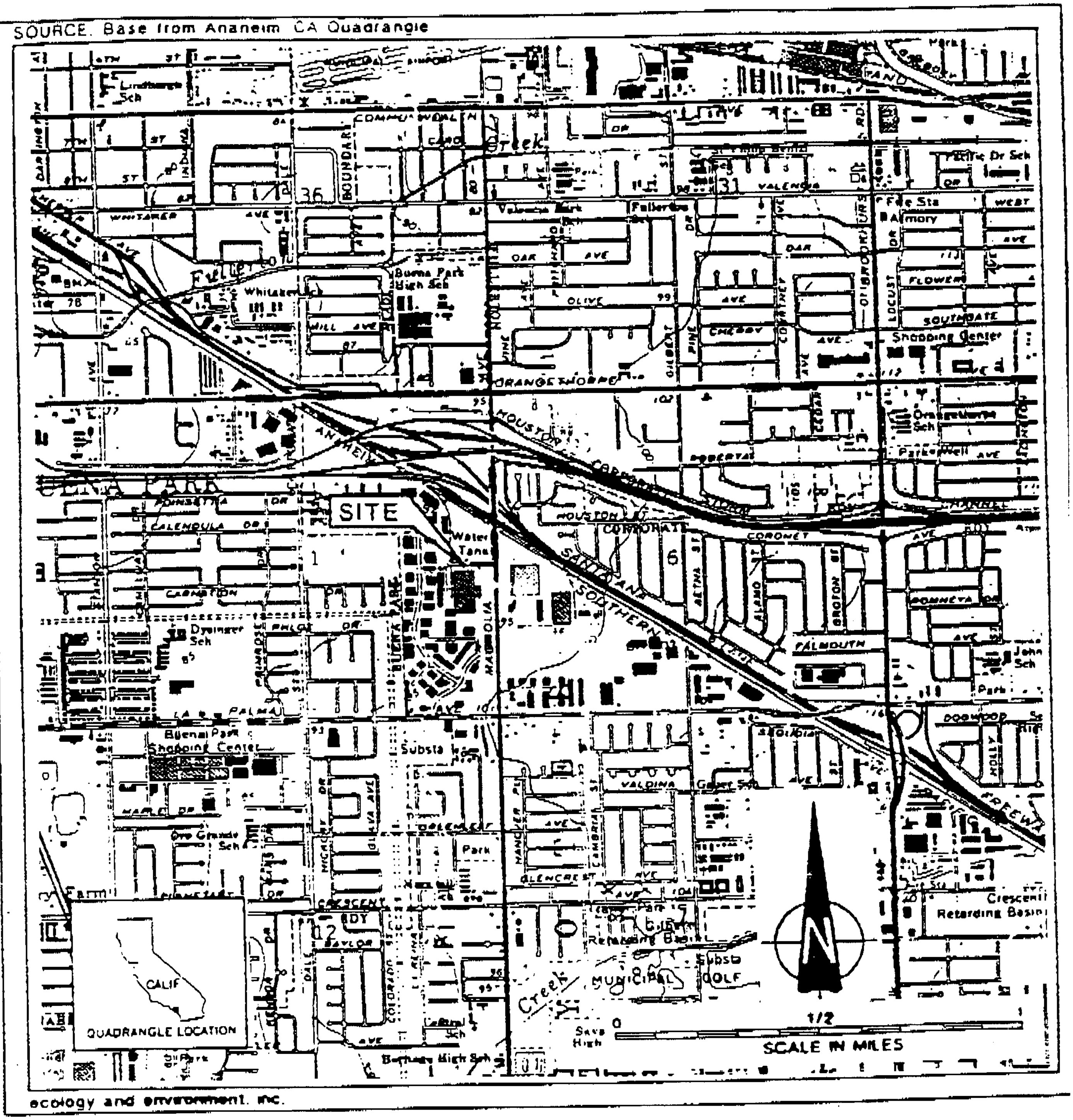


FIGURE 1

DELCO REMY SITE LOCATION MAP

No physical hazards were present from facility operations or machinery, since no sampling was conducted in manufacturing areas.

Weather during the sampling visit was sunny and warm, with temperatures ranging from the mid-70s degrees Fahrenheit (°F) to low 80s °F. Two weeks prior to the VSI/SV (during the week of February 10, 1992), the Anaheim area received in excess of 3 inches of rain. Surface evidence of the recent rainstorms during PRC's sampling activities was limited to an approximately 50-square-foot area of muddy soil located in the north-central region of the northwest field, including a shallow puddle covering approximately 10 square feet.

3.0 SUMMARY OF VISUAL SITE INSPECTION ACTIVITIES

This section describes the purpose of the VSI portion of the VSI/SV at the Delco Remy facility, and includes a brief description of the facility's history, battery manufacturing process, and waste generation and management practices. Solid Waste Management Units (SWMUs) at the Delco Remy facility are identified and described in reference to the SWMUs discussed in the August 10, 1990 Environmental Priorities Initiative Preliminary Assessment Report (PA) for Delco Remy, prepared by Ecology and Environment, Inc. (E&E). Descriptions of SWMUs obtained from the PA report are updated and clarified in this VSI/SV report. One additional SWMU not identified in the PA report is also described in this section.

3.1 PURPOSE OF VISUAL SITE INSPECTION

The VSI was conducted to obtain, update, and clarify information regarding Delco Remy's waste management practices. The following activities were included in the Delco Remy VSI and subsequent review of VSI information:

- Evaluation of the Delco Remy facility for the presence of SWMUs and Areas of Concern (AOC) not identified in the PA, and identification of SWMUs that were not previously identified as RCRA-regulated units.
- Confirmation and clarification of information contained in the PA report, with regard to SWMUs and AOC at Delco Remy.
- Evaluation of SWMUs and AOC for potential release of hazardous waste, hazardous constituents, or other substances to all environmental media (i.e., soil, air, surface water, ground water, and surface run-off).
- Screening from further investigation those SWMUs and AOC that do not present the potential for a release of hazardous waste or hazardous constituents.

- Evaluation of potential receptors (human and environmental targets) that may be impacted by a release of hazardous waste or hazardous constituents from Delco Remy SWMUs or AOC that were not identified in the PA Report.
- Identification of other potentially contaminated areas of the facility that should be sampled as part of the SV.
- Qualitative evaluation of the adequacy of any previous clean-up activities.

3.2 FACILITY HISTORY

In 1954, the Delco Remy Division of General Motors began manufacturing lead acid automotive batteries at its Anaheim facility. During its first year of production, the facility produced four different battery models and over 540,000 batteries. Hard rubber battery cases and plastic separators were also manufactured on-site. In July 1977, the facility began producing maintenance-free batteries (E&E, 1990).

The types of waste produced and waste management practices have changed since 1954. Resorcinol was formerly used in an old lead grid molding process as a glue in the mold coat. Trichloroethane (TCA) was also formerly used on-site as a cleaner. Two furnaces were used to reclaim lead on-site until 1984 when it became more cost-effective to have lead reclaimed by an off-site vendor (E&E, 1990).

Wastes subject to RCRA land disposal restrictions (LDRs) are no longer generated. The facility has substituted all land disposal restricted solvents and paints with mineral spirits, detergents, and water-based paints.

Past waste management practices included the use of underground storage tanks and the storage of defective and old batteries along the railroad tracks in the northwest field (E&E, 1990).

3.3 BATTERY MANUFACTURING PROCESS

The manufacture of lead acid batteries at Delco Remy begins with making lead plates. Lead bars, known as "hogs," are melted, formed into strips, and rolled into coils. Soluble oil (2 percent oil, 98 percent water) is used to lubricate the lead as it is rolled to a specified thickness depending on whether it is to be used for a negative or positive plate. The lead is then trimmed to a specified width (scraps are remelted). After the lead cools and hardens, the lead strip is perforated. Soluble oil is used again as the lead is pressed and expanded to form a grid. Lead oxide paste is applied to the lead grid strip, and the strip is cut into rectangular plates (E&E, 1990).

The lead oxide paste is manufactured on-site as follows. Lead oxide is formed by pulling air through molten lead in an oxide reactor. From the oxide reactor, the lead oxide goes to a settling chamber and then to a storage hopper. Next, the lead oxide is ground and sent through a cyclone collector and baghouse where the lead oxide dust is collected. Sulfuric acid at 93.2 percent concentration is diluted to 50 percent concentration and added to the lead oxide to form a lead oxide paste that is 10 percent lead sulfate and 90 percent lead oxide. The lead oxide paste is spread on the lead grid strip. Negative plates are stored to dry; positive plates are exposed to 212 °F and steamed to form crystals (E&E, 1990).

While the plates are being prepared, the plastic battery cases and lead battery terminals are formed. Next, the plates are formed into groups and inserted into the cases, and interim covers are placed on the batteries during intermediate assembly.

During final assembly, 93.2 percent sulfuric acid is diluted and added to the batteries for charging. After charging, the charging acid is removed and replaced with fresh acid, and the final covers are installed. The batteries are washed, dried, labeled, boxed, and put into storage to await distribution to consumers (DHS, 1989).

3.4 WASTE GENERATION AND MANAGEMENT

There are several waste generation points in the lead acid battery manufacturing process at Delco Remy. The strip milling process generates lead dross when the lead pig is melted. Also in the lead strip milling process, 2% soluble oil and water is sprayed on the lead strip, resulting in lead-contaminated water. The plate pasting process generates waste lead oxide slurry and defective plates containing lead oxide. The battery plate steamer generates water contaminated with lead oxide. Demisters and air scrubbers in the formation (battery charging) department generate wastewater containing sulfuric acid. The final assembly process generates defective batteries and waste formation sulfuric acid (DHS, 1989).

During the manufacturing process, several components are cooled with non-contact cooling water (Delco Remy, 1992).

Facility maintenance generates two waste streams. Occasional washdown or steam cleaning of manufacturing equipment generates wastewater containing lead and/or oil. Waste hydraulic oil is periodically generated when the manufacturing equipment's hydraulic oil is changed (DHS, 1989).

As part of Delco Remy's quality control program, the facility tests batteries from the production line and autopsies defective batteries that are returned under warranty. During these tests and autopsies, batteries are placed on a polyvinyl chloride (PVC)-coated workbench, the tops are cut off, and the acid is drained into a PVC-lined sink, that drains to the wastewater treatment system. The batteries are then examined to determine why they failed. After the examination, the plastic battery tops are banded back in place and the batteries are stored on wooden pallets prior to shipment off-site for reclamation (DHS, 1989). Delco Remy ships defective batteries and other recyclable lead materials to RSR Quemetco (EPA ID. No. CAD066233966), a lead reclamation facility located in City of Industry, California (Delco Remy, 1992).

All acid-and lead-contaminated process water generated at Delco Remy is sent to the facility's wastewater treatment unit. Wastewater from the facility is treated with a precipitant, mixed, pH adjusted, flocculated, and clarified in a series of basins and clarifiers to precipitate lead. The clarifier sludge is pumped through a filter press for dewatering and lead reclamation. The treated wastewater is continuously monitored for pH, and lead content is measured up to 3 times per week. Once the wastewater has reached permitted discharge levels, it is discharged to the Orange County sanitary sewer system. The filter cake generated from the operation of the wastewater treatment unit's filter press is sent to RSR Quemetco to reclaim its lead content (Delco Remy, 1992).

3.5 SOLID WASTE MANAGEMENT UNITS

This section provides brief descriptions of the SWMUs identified during the VSI. The SWMUs described in the August 1990 PA report for Delco Remy and listed in EPA's October 1991 scope of work for this work assignment were used as a guide during the VSI. Based on review of these documents and the findings of this project, the following SWMUs are listed for the Delco Remy facility.

1) Wastewater Treatment Unit - lead-containing and corrosive wastewater

2) * Hazardous Waste Storage Area - (less than 90-day storage since 1983, but not yet closed)

3) Former Gondola Bin and Roll-off Bins - waste diatomaceous earth

4) Waste Lead Oxide Slurry Collection Channel

5) Former Vacuum Filter Machine

6) Hydraulic Oil Collection Channel

7) Former Underground Waste Oil Storage Tank

8) * Battery QA/QC and Autopsy Area

9) Soluble Oil Collection and Processing Tanks

10) Oily Waste Collection and Cleaning Area (formerly equipment washdown tank)

11) Former Defective Battery Storage Area

12) Northwest Field - former storage of dead batteries

13) Lead-Contaminated Steel Roll-Off Bin

(* denotes a RCRA-regulated unit)

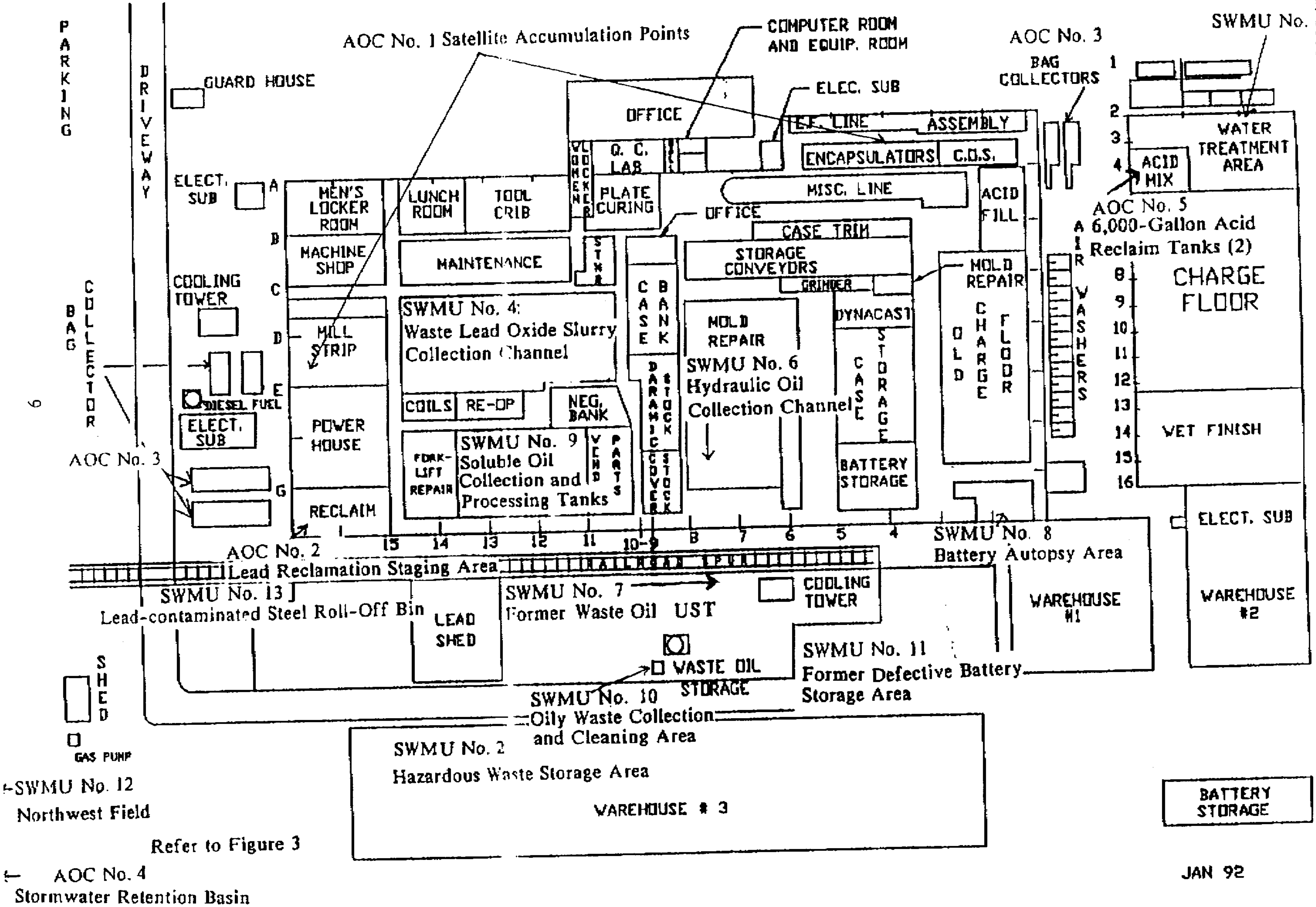
Only one additional SWMU (SWMU No. 13, a roll-off bin for lead-contaminated steel) was identified during the VSI. No new RCRA-regulated units were identified among the SWMUs identified during the VSI. SWMU locations are shown in Figure 2.

3.5.1 SWMU No. 1: Wastewater Treatment Unit

Delco Remy's wastewater treatment unit is located at the southeast corner of the facility. The wastewater treatment unit's primary components are an approximately 90,000-gallon fiberglass-lined concrete wastewater holding basin, three approximately 12,000-gallon fiberglass-lined concrete wastewater neutralization basins (Appendix A, photograph 1), and an aboveground sodium hydroxide tank. The wastewater treatment unit treats acid-and lead-contaminated wastewater collected from various points of the battery manufacturing process (DHS, 1989 and Delco Remy, 1992).

The wastewater treatment unit neutralizes and precipitates metals from the influent wastewater. Precipitated metals (mostly lead) are collected from the clarifier sludge through the filter press (Appendix A, photograph 2). Filter press solids are collected in plastic-lined cardboard boxes and sent to RSR Quemetco for reclamation. Treated water is discharged to the Orange County sanitary sewer system once its pH levels have met discharge requirements (DHS, 1989 and Delco Remy, 1992).

DELCO REMY
SOLID WASTE MANAGEMENT UNIT AND
AREAS OF CONCERN LOCATION MAP



Before installation of the filter press in February 1991, diatomaceous earth was used to filter lead from the facility wastewater; the resulting lead-contaminated diatomaceous earth was disposed of at a Class I landfill (Delco Remy, 1992).

3.5.2 SWMU No. 2: Hazardous Waste Storage Area

The hazardous waste storage area is located at the north end of warehouse No. 3, which is located on the west side of the facility (Appendix A, photograph 4). The hazardous waste storage area is constructed of sealed concrete and is divided by epoxy-lined trenches into one waste storage area and two virgin product storage areas, measuring approximately 10 feet by 15 feet each, with a grated epoxy-lined trench around the perimeter. Waste streams stored in this area are contained in 55-gallon drums and may include paint-related wastes and oil-contaminated items (Delco Remy, 1992).

3.5.3 SWMU No. 3: Former Gondola Bin and Roll-off Bins

This SWMU is no longer in place at the Delco Remy facility. The gondola bin and roll-off bins were taken out of use when the new wastewater treatment system was installed in February 1991. During the years when diatomaceous earth was used to filter wastewater, contaminated diatomaceous earth was dumped into an indoor gondola bin, which was periodically dumped into two plastic-lined 20-cubic-yard roll-off bins (Delco Remy, 1992).

3.5.4 SWMU No. 4: Waste Lead Oxide Slurry Collection Channel

Waste lead oxide slurry, generated from the battery plate pasting operations, is directed to a grated concrete channel that surrounds each battery plate pasting machine (Appendix A, photograph 5). The slurry from the concrete channel is pumped through a filter press similar in design to the filter press in the wastewater treatment unit (Appendix A, photograph 6). Solids generated from the filter press are sent off-site for lead reclamation. Residual liquids remaining after pumping the waste lead oxide slurry through the filter press are directed to the wastewater treatment unit (Delco Remy, 1992).

The filter press replaced the less efficient vacuum filter machine (SWMU No. 5) that was formerly used to filter solids from the waste lead oxide slurry (Delco Remy, 1992).

3.5.5 SWMU No. 5: Former Vacuum Filter Machine

The vacuum filter machine was replaced by a filter press in July 1991. As noted in the description of SWMU No. 4, the waste lead oxide slurry collection channel, the vacuum filter machine was formerly used to filter solids from waste lead oxide slurry generated in Delco Remy's battery plate pasting department (Delco Remy, 1992).

3.5.6 SWMU No. 6: Hydraulic Oil Collection Channel

Epoxy-coated and grated concrete channels surround the plastic battery case molding machines known as "Cincinnatis" (after the Cincinnati, Ohio based company that manufactures the machines) (Appendix A, photograph 7). The concrete channels collect hydraulic oil and water that may leak from the plastic molding machines (Delco Remy, 1992).

3.5.7 SWMU No. 7: Former Underground Waste Oil Storage Tank

A 12,000-gallon underground storage tank (UST) that contained flux oil for rubber products was located between the railroad tracks and the equipment washdown tank (known as the oilhouse). This tank was removed in 1986. There is currently a concrete pad at this location (Delco Remy, 1992) (Appendix A, photograph 8).

The flux oil tank was in the immediate vicinity of a former leaking 12,000-gallon UST that contained sodium hydroxide. This tank was also removed in 1986. A release of sodium hydroxide to soil and ground water was attributed to this leaking tank as described in the PA report (E&E, 1990).

3.5.8 SWMU No. 8: Battery QA/QC and Autopsy Area

The battery QA/QC and autopsy area is located in the southeast corner of the main manufacturing building at the Delco Remy facility (Appendix A, photograph 9). During battery tests and autopsies, batteries are placed on a polyvinyl chloride (PVC)-coated workbench, the tops are cut off, and the acid is drained into a PVC-lined sink, which drains to the wastewater treatment system. The batteries are then examined to determine why they failed. After examination, the plastic battery tops are banded back in place and the batteries are stored on wooden pallets on the concrete floor near the battery autopsy area (Appendix A, photograph 10), prior to shipment off-site for reclamation (Delco Remy, 1992)

3.5.9 SWMU No. 9: Soluble Oil Collection and Processing Tanks

The soluble oil collection and processing tanks are part of a soluble oil collection and processing system that is being installed at the Delco Remy facility to reclaim spent soluble machine oils from on-site manufacturing equipment. This system is not yet operational. Spent soluble machine oils are currently transferred to the 6,000-gallon aboveground waste oil storage tank (located east of warehouse No. 3) prior to shipment off-site for reclamation (Delco Remy, 1992).

During the VSI, there were four empty polyethylene plastic tanks present in the proposed collection and processing area. Two of the empty tanks each had an approximate capacity of 500 gallons and were located within polyethylene containment structures. The other two empty tanks each had an approximate capacity of 100 gallons (Delco Remy, 1992) (Appendix A, photographs 11 and 12).

3.5.10 SWMU No. 10: Oily Waste Collection and Cleaning Area (Formerly Equipment Washdown Tank)

The equipment washdown tank identified as SWMU No. 15 in the EPA scope of work for this work assignment refers to an enclosed equipment washing and waste oil transfer area known as the "oil house" and the 6,000 gallon aboveground storage tank. The oil house consists of an approximately 300-square-foot sealed concrete area with a grated sump around the perimeter. The concrete area and sump are covered by a corrugated aluminum structure (Appendix A, photograph 13). The oil house is divided in half by a grated sump and a corrugated aluminum dividing wall (Delco Remy, 1992).

One side of the oil house consists of a spray washing area for cleaning oil-contaminated equipment. The opposite side contains an approximately 150-gallon waste oil transfer tank that temporarily holds waste oils generated by the facility's manufacturing equipment. Waste oil deposited in the transfer tank is pumped to the aboveground 6,000-gallon secondarily contained waste oil storage tank located directly behind the oil house (Delco Remy, 1992) (Appendix A, photograph 14)

3.5.11 SWMU No. 11: Former Defective Battery Storage Area

Defective batteries from the battery autopsy area had been stored outside on pallets in an area between the manufacturing building and warehouse No. 3 (E&E, 1990) (Appendix A, photograph 15). Currently, these batteries are stored indoors on pallets, adjacent to the battery autopsy area. Defective batteries are shipped to RSR Quemetco for lead reclamation (Delco Remy, 1992).

3.5.12 SWMU No. 12: Northwest Field

The northwest field at the Delco Remy facility refers to an open field located in the northwest corner of the Delco Remy property (Appendix A, photographs 16, 17, and 18). The northwest field is bordered by the Delco Remy property line fence on the north and west sides, a Southern Pacific railroad spur line on the east, and a fence separating the field from the manufacturing area on the south (Figure 3). The facility's storm water retention basin, which receives runoff from the Delco Remy site, is located in the southwest corner of the northwest field. Prior to construction of the stormwater retention basin, runoff from the Delco Remy facility followed a drainage ditch on the west side of the northwest field, at the present location of the storm water retention basin (E&E, 1990).

High soluble lead concentrations (up to 39.6 milligrams per liter (mg/L) by the California WET method) were detected in surface and near surface soil samples obtained from northwest field drainage ditch area soils prior to excavating the site for construction of the stormwater retention basin (Dames and Moore, 1989). The lead contamination in the northwest field has been attributed to dead and defective lead acid batteries that were stored in this area up until the early 1970s. Apparently, sulfuric acid containing lead leaked from the batteries, contaminating surrounding soils (E&E, 1990).

During May and August 1989, lead-contaminated soil was removed from the northwest field drainage ditch and basin area. Soil was sampled along the ditch under the supervision of the Orange County Health Care Agency's Environmental Health Unit to confirm that all contaminated soil had been removed. Excavated soils were chemically treated on site using an Ensotech system to convert heavy metals into insoluble silicates. After analytical results demonstrated that the soils were no longer contaminated, approximately 3,000 cubic yards of treated soil were sent to a Class 3 landfill. According to the Orange County Health Care Agency, soil remediation efforts thus far have addressed the western half of the northwest field (E&E, 1990). According to Delco Remy's consultant, Dames and Moore, a lead-contaminated area measuring approximately 300 feet by 18 feet still remains along the eastern side of the northwest field (Dames and Moore, 1989).

During the VSI, a pile of soil was observed on the north end of the northwest field. According to Delco Remy representative Ron Burk, these soils are clean fill excavated during the stormwater retention basin construction. Lead levels in these soils are reportedly low (less than 5 mg/l by the California WET method). The decision to store these soils here was overseen by the Orange County Health Care Agency (Delco Remy, 1992).

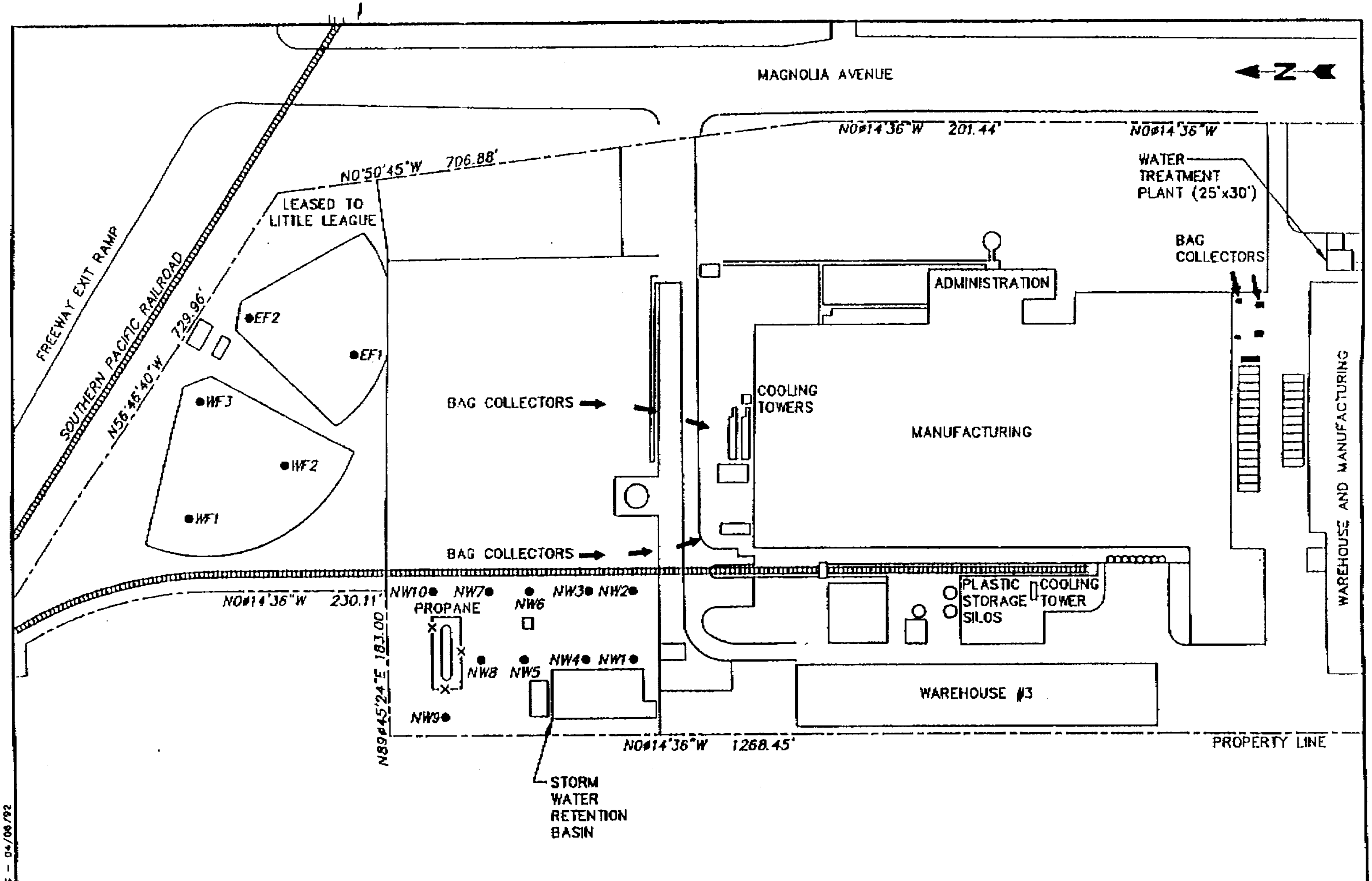


FIGURE 3

SOIL SAMPLE LOCATION MAP
DELCO-REMY DIV. G.M.C.
ANAHEIM, CALIFORNIA

(212-R0904)DELCORMY.DWG - 04/08/92

3.5.13 SWMU No. 13: Lead-Contaminated Steel Roll-Off Bin

A roll-off bin used for disposal of lead-contaminated steel was the only SWMU identified during the VSI that was not identified in the PA report (Appendix A, photograph 19).

Unit Description

On an occasional basis (up to once per year), Delco Remy uses an approximately 20-cubic-yard-capacity steel roll-off bin and places it just outside of the northwest corner of the main manufacturing building, between the building and the railroad tracks. The steel roll-off bin is lined with plastic sheeting (Visqueen).

Date of Start-Up

According to Ken Rayle, environmental and hazardous waste management manager for Delco Remy, the roll-off bin has been used for several years. Although a definite start-up date could not be determined, this occasional practice of using a roll-off bin in this location began in the early 1980s (Delco Remy, 1992). Such a roll-off bin was in place (although empty) during the VSI/SV.

Wastes Managed

The roll-off bin is used for disposal of lead-contaminated steel parts and equipment. These wastes are generated from repair or replacement of lead acid battery manufacturing equipment. The roll-off bin was empty at the time of the VSI.

Release Controls

The roll-off bin is constructed of steel and is lined with plastic sheeting.

History of Releases

There have been no documented releases of hazardous wastes or hazardous constituents from the roll-off bin.

Release Potential

The roll-off bin is used only for disposal of lead-contaminated steel and is lined with plastic sheeting. No liquids or sludges are deposited in the bin. Consequently, the chance for a release of hazardous wastes or hazardous constituents from the bin is remote.

3.6 REVISIONS TO SOLID WASTE MANAGEMENT UNIT LIST AND AREAS OF CONCERN

This section discusses revisions to the list of SWMUs at the facility made during this work assignment. The original list of 17 SWMUs was based on waste management information contained in the Delco Remy PA report. The revised list which appears in Section 3.5 of this document is based on information gathered during the Delco Remy VSI, the SWMU definition contained in EPA's RCRA Facility Assessment (RFA) guidance document (EPA, 1986a) and the proposed 40 CFR Part 264 Subpart S rule, and the definition of a solid waste contained in 40 CFR Part 260. The RFA guidance document includes the following definition of a SWMU:

> "Any discernible unit at which solid wastes have been placed at any time, irrespective of whether the unit was intended for the management of solid or hazardous waste. Such units include any area at a facility at which solid wastes have been routinely and systematically released" (EPA, 1986a).

A discernible unit in this context includes the types of units typically identified with the RCRA regulatory program, including landfills, surface impoundments, land treatment units, waste piles, tanks, container storage areas, incinerators, injection wells, wastewater treatment units, waste recycling units, and other physical, chemical, or biological treatment units. However, units in which wastes have not been managed, such as product storage areas, are not considered SWMUs. Units that do not fit the definition of a SWMU are generally identified as Areas of Concern (AOC).

In addition, certain wastes are exempt from solid waste classification if they are reused or reclaimed as an effective substitute ingredient in the original process, without prior reclamation. Since this exemption appears to be satisfied for some of the waste streams at the Delco Remy facility, several SWMUs appearing in the original PA are identified only as AOC in this report. The units that fall into this category include the Satellite Accumulation Points (formerly SWMU No. 2), the Cardboard Boxes (formerly SWMU No. 4), the Dust Collection Baghouses (formerly SWMU No. 8), and the Acid Reclamation Tanks (formerly SWMU No. 12). In addition, the Stormwater Retention Basin (formerly SWMU No. 10) is not a SWMU since it is governed by the

National Pollution Discharge Elimination System (NPDES) program. Brief descriptions of these AOCs are contained in the following subsections.

3.6.1 AOC No. 1: Satellite Accumulation Points

Satellite accumulation points at Delco Remy consist primarily of plastic-lined cardboard boxes that are used to collect scrap lead, lead dross, and defective battery plates at various points along the battery manufacturing line (Appendix A, photographs 20 and 21). Thirty- or 55-gallon- capacity steel containers have also been used to collect lead waste streams at Delco Remy (Appendix A, photograph 22). The satellite accumulation point containers are fitted with metal lids that are only open when adding or removing waste (Delco Remy, 1992).

Satellite accumulation points are located in the battery plate encapsulation, strip milling, and battery plate pasting areas. Off-specification battery plates are accumulated in the battery plate encapsulation and battery plate pasting areas. Lead scrap and lead dross are primarily collected in the strip milling area. Lead scraps are generally remelted in the strip milling process; lead dross and off-specification battery plates are sent to RSR Quemetco for reclamation (Delco Remy, 1992).

Once a satellite accumulation point container is full, it is weighed and moved to the lead reclamation staging area (known as the "reclaim room") to await pick-up by RSR Quemetco. The reclaim room is located in the northwest corner of Delco Remy's main manufacturing building. RSR Quemetco picks up waste lead from the reclaim room two to three times per week (Delco Remy, 1992).

3.6.2 AOC No. 2: Cardboard Boxes (Lead Reclamation Staging Area)

The 1990 PA report made reference to plastic-lined cardboard boxes containing reclaimed lead, which appears to refer to full boxes containing lead dross or off-specification lead plates that are picked up from satellite accumulation points and stored in the reclaim room prior to transport to RSR Quemetco for reclamation (Appendix A, photographs 23, 24, and 25). Thus, the "Cardboard Boxes" SWMU as described in the PA report could more accurately be called the "lead reclamation staging area."

3.6.3 AOC No. 3: Dust Collection Baghouses

According to the PA report, the Delco Remy facility has only one lead dust collecting unit or "baghouse" to collect lead dust from battery plate drying operations. During the VSI, five other baghouses at the facility that collect lead dust generated from other battery manufacturing processes were identified (Appendix A, photographs 26 and 27). In addition to the baghouse noted in the PA report, there are two baghouses for collecting lead oxide dust from the manufacture of lead oxide paste, two baghouses to collect lead dust generated from the strip milling process, and one baghouse serving the battery plate encapsulation processes (Delco Remy, 1992).

The facility's baghouses are checked daily and emptied as needed (up to once per week). Lead dust is emptied into plastic-lined cardboard boxes and stored in the reclaim room prior to shipment to RSR Quemetco for lead reclamation (Delco Remy, 1992).

3.6.4 AOC No. 4: Stormwater Retention Basin

Stormwater runoff from the Delco Remy facility, with the exception of runoff from the lawn or parking lot, is directed to a 380,000-gallon capacity concrete stormwater basin located in the northwest corner of the site (Appendix A, photographs 28, 29, and 30). Water collected in the stormwater retention basin is pumped through a series of filters to remove suspended solids before being discharged to the Magnolia Avenue storm drain. Delco Remy's National Pollution Discharge Elimination System (NPDES) permit requires compliance to standards for lead, oil and grease, total dissolved solids, and clarity prior to discharging the water to the storm drain (Delco Remy, 1992).

3.6.5 AOC No. 5: 6,000-Gallon Acid Reclaim Tanks (2)

The two 6,000-gallon fiberglass acid-reclamation tanks are located above-ground at the southeast corner of the Delco Remy facility, adjacent to the wastewater treatment unit (Appendix A, photograph 31). These tanks hold sulfuric acid that has been diluted for use in Delco Remy manufactured batteries. The tanks are contained within an acid-proof brick retaining structure (Delco Remy, 1992).

To: Mike / Tom Tathall

PBR closure info

From: Tom Renn

317-504-8264

(12 pages to follow)

CLOSURE PLAN

SITE INFORMATION

Business Name:	Delphi Engine and Chassis Systems
Business Address:	1201 North Magnolia Ave
City, State, Zip	Anaheim, CA 92801
County	Orange
Telephone Number:	(714) 220-6027
Fax Number:	(714) 220-6080
Operator or Owner:	Delphi Corporation

MAILING ADDRESS

Company:	Delphi Engine and Chassis Systems
Street:	1201 North Magnolia Ave
City, State, Zip:	Anaheim, CA 92801

This closure plan contains the proposed steps that would be taken in the event a closure of a fixed treatment unit was necessary.

List of Fixed Treatment Unit:

FTU name: Process Water Treatment System FTU Serial No: Dr-01

CLOSURE PROCEDURES

In the event of closure, all hazardous waste and hazardous waste residues will be removed from the containment system. Remaining containers, liners, bases, and soil containing or contaminated with hazardous waste or hazardous waste residues will be decontaminated or removed and disposed of as hazardous waste. All equipment and structures will also be decontaminated or removed and disposed of as hazardous waste. These procedures will be performed with the intention of minimizing or eliminating the need for further maintenance and the possibility of post-closure escape of hazardous waste. Best Available Technology (BAT) procedures will be used.

Facility closure procedures will include the following:

1. Untreated waste sludge remaining in the unit at the time of closure will be removed by contractor and disposed by Delphi.

2. WWT equipment and structures will be decontaminated by washing down with an appropriate solution to remove all hazardous wastes and hazardous waste residues. Samples will be taken from the final wash down solution and analyzed to ensure that the unit has been rendered non-hazardous. If the wash down solutions are not non-hazardous or if there are visible stains from hazardous wastes or residues this procedure will be repeated until the unit is rendered non-hazardous or the unit will be removed and disposed of as hazardous waste. Wash down solutions will either be waste treated on-site or hauled off-site by a licensed waste hauler to an approved hazardous waste disposal site.

3. All containment systems and components will be washed down with an appropriate solution to remove all hazardous wastes and hazardous waste residues. Samples will be taken from the final wash down solution and analyzed to ensure that the containment systems and components have been rendered non-hazardous. In the case of a concrete containment system, the area will be sandblasted. The wash down solutions and sand blasted material will either be waste treated on site, or hauled off site by a licensed waste hauler to a hazardous waste disposal site. Soil samples will be taken around containment systems and underground piping locations.

4. All walls within the facility will be inspected and cleaned of any contamination by hazardous wastes and residues.

5. The sewer connection and associated piping will be inspected for any contamination or damage.

6. All existing piping associated with the WWT will be removed. The piping will be rendered non-hazardous or disposed of as hazardous waste.

7. All hazardous wastes that are on site will be manifested and hauled to a lead smelter for recycle or a hazardous waste disposal site by a licensed waste hauler. These wastes include all solid and liquid wastes generated prior to the removal of equipment, as well as any wastes generated by the closure

8. COMPLETE SOIL SAMPLING AT [illegible] SITE

CLOSURE SCHEDULE

In the event of a closure of a fixed treatment unit:

1. All hazardous waste will be treated or removed from the facility and disposed of as hazardous waste within ninety (90) days after treating the final volume of hazardous waste.
2. All closure activities in accordance with the closure plan will be completed within the next ninety (90) days or 180 days after treating the final volume of hazardous waste.

TIME TABLE

Step 1	Final volume of waste is treated	Currently not anticipated
Step 2	All hazardous waste treated/removed	90 days later than the date in Step 1
Step 3	Completion of all closure activities	180 days later than the date in Step 1 or 90 days later than the date in Step 2
Step 4	Final Closure Date	Date in Step 3

WASTE INVENTORY

Estimate of the **maximum** inventory of waste in storage and in treatment at any time during the operation of the FTU.

FTU Serial Number	FTU Name	Quantity of waste in unit
DR-01	Process Wastewater Treatment System	13,126 gallons
Quantity of waste in storage		0
	Total	13,126 gallons

AMENDMENT OF PLAN

The owner or operator may amend the closure plan at any time prior to the notification of closure. However, an owner or operator with an approved closure plan must submit a written request to CUPA in order to authorize a change to the approved closure plan.

The owner/operator must amend the closure plan whenever:

1. Changes in operating plans or facility design affect the closure plan.
2. There is a change in the expected year of closure.
3. In conducting partial or final closure activities, unexpected events require a modification of the closure plan.

The owner/operator must amend and resubmit the plan at least 60 days prior to the proposed change or no later than 60 days after an unexpected event. If an unexpected event occurs during the closure period, the owner or operator must amend the closure plan no later than 30 days after the unexpected event.

CLOSURE NOTIFICATION

Delphi Energy and Chassis Systems must submit the closure plan to CUPA for approval at least 60 days prior to the date the closure is expected to begin. The "date the closure is expected to begin" must be no later than the date on which the FTU receives the known final volume of hazardous wastes. If there is a reasonable possibility that the FTU will receive additional hazardous wastes, then the "date the closure is expected to begin" must be no later than one year after the date the FTU received the most recent volume of hazardous wastes.

Upon approval of the submitted closure plan, Delphi Engine and Chassis Systems must proceed to implement the closure plan as written unless amendments are made and submitted for approval (see "Amendment of Plan ").

Delphi Energy and Chassis Systems must then notify CUPA (15) days prior to completion of closure. Delphi Energy and Chassis Systems must remain in compliance with all applicable requirements of closure and management of hazardous waste until Delphi Engine and Chassis Systems submits to the CUPA a certification signed by the owner or operator and by an independent, professional engineer registered in California, that the closure plan meets or exceeds the applicable requirements.

Finally, Delphi Engine and Chassis Systems must submit an amended Facility-Specific Notification to CUPA to reflect this change in the operating conditions of our tiered permitting status.

CERTIFICATION OF FINANCIAL RESPONSIBILITY
FOR TIERED PERMITTING OPERATIONS.

CLOSURE COST ESTIMATES

This section contains written estimates of the cost of closing the Fixed Treatment Unit at the point in the unit's operating life when the extent and manner of its operation would make closure the most expensive. Please refer to the Closure Plan for a description of the steps taken to close the unit.

All estimates will be adjusted for inflation annually as specified in the regulations using the following equation:

(latest closure cost estimate) x (latest inflation factor*)

All estimates will be revised whenever a change in the closure plan increases the cost of closure.

The following conditions were considered:

1. Facility operating at normal production.
2. Fixed Treatment Unit operating at full capacity.
3. Amount of untreated waste at a maximum.

- latest inflation factor is derived from the annual Implicit Price Deflator for Gross National Product as published by the U.S. Department of Commerce in its Survey of Current Business. The inflation factor is the result of dividing the latest published annual Deflator by the Deflator of the previous year.

Delphi Engine and Chassis Systems' closure cost estimate is included in this Section.

Closure Cost Estimate
For
Delphi Engine and Chassis Systems

A. Costs for Removal/Disposal/Treatment of Waste

The following items were taken into consideration:

1. The type and amount of waste in each tank/container. This value was taken directly from the closure plan and reflects the maximum amount of waste the tank/container will hold.
2. The cost of a third party picking up, transporting and disposing of the waste. The cost estimate includes profile and any other miscellaneous fees associated with removing and disposing of the waste.
3. Other associated wastes that would have to be removed.

B. Costs for Removal/Disposal/Treatment of Equipment

The following items were taken into consideration:

1. If the tanks and/or containers will be removed separately from the waste stream they contain (i.e. waste is pumped out of the tank leaving tank behind), the cost for disposing of the empty tank or container will be determined. Treatment equipment (i.e. clarifier, lamella settler, batch treatment tanks, etc.) must also be considered..
2. Ancillary equipment such as piping, fittings, pumps, mixers and anything else associated with the treatment units was considered for removal..

After decontamination, the following equipment will be non-hazardous and can be disposed of as non-hazardous waste in the local landfill or scrap metal company:

Sand Filter
PH adjust tank
Coagulation tank
Sludge holding tank
Clarifier

There will be approximately two 5 drums of ancillary equipment, piping, pumps, mixers, wooden floorboards, etc. which will not be amenable to decontamination and will require removal and disposal.

C. Decontamination Costs

The following items were taken into consideration:

1. Floors, bermed areas, trenches, piping, etc. will have to be decontaminated. The extent of the area(s) that need to be decontaminated was determined.
2. Waste treatment equipment will have to be decontaminated.
3. The amount of wash water that will be generated in decontamination processes was estimated. A standard of 10% of the volume of the tank or container was used. For example: a 500 gallon tank would take approximately 50 gallons of water for decontamination/cleaning. Filter presses take approximately 25 gallons. Wash water generated from decontamination of containment areas is based on the size of the containment area. All of the wash water from decontamination processes will have to be drummed or pumped out and disposed of.

D. Transportation Costs

There are two different rates of transportation in our estimate. One rate is the cost of shipping waste to a landfill site. The other rate is the cost of shipping recycle waste to a lead smelter.

E. Sampling Costs

The following items were taken into consideration:

Sampling must be performed to prove that the waste treatment area is decontaminated. One wipe sample will be taken from each containment area. Additionally, the estimate will include one contingency sample in the event that it is necessary.

F. Closure Certification Costs

I. Containers and Cleaning Solutions

A.	Disposal/Treatment Costs	
	1. Removal of lead sludge from waste water treatment basin	$7,500
	2. 20 cubic yards of lead contaminated process equipment and steel - maximum inventory	$8,420
	3. 20 cubic yards of lead contaminated debris - maximum inventory	$14,200
B.	Labor to clean sludge containers	$4,410
C.	Cleaning solution, equipment rental, personal protective equipment, etc	$680
D.	Disposal costs of cleaning solutions	$1,080
II.	**Decontamination of Storage Areas/Process Lines**	
A.	Cleaning solution, equipment rental, personal protective equipment, etc.	$780
B.	Labor	$5,290
C.	Disposal of any contaminated materials	$4,080
III.	**Decontamination of Equipment**	
A.	Cleaning solution, equipment rental, personal protective equipment, etc.	$580
B.	Labor	$2,860
IV.	**Closure Certification**	
A.	Professional Engineer costs	$3,738
B.	Expenses	$2,640
	Closure Cost	$56,268*
	Less Salvage Value of property	Greater than $5,000,000
	Total Closure Cost	Less than $0.00*

*Delphi Energy & Chassis Systems is exempted from the financial assurance requirement due to the fact that the sale of property would gain a net amount greater than 5 million dollars (attachment). Proceeds from the sale of property will be used to clean close the DR-01 fixed unit.

F. Owner or Operator Certification

SIGNER OF THIS CERTIFICATION a.. Owner X b. Operator

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those directly responsible for gathering the information is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations. CCR 66270.11).

~~SIGNATURE OF OWNER/OPERATOR~~	~~DATE~~ 10/23/03
NAME OF OWNER/OPERATOR (Print) ERIK LITTRUP	TITLE OF OWNER/OPERATOR PLANT MANAGER

To: Tom Tatnall

9-9-05

USI report text

& small map

7?-485-3433

Fr: Tom Reeve

317-504-0264

(18 pages to follow)

TOM URAM
DIRECTOR

HUGH F. STALLWORTH, M.D.
HEALTH OFFICER

JACK MILLER, REHS
DEPUTY DIRECTOR

MAILING ADDRESS:
2009 EAST EDINGER AVENUE
SANTA ANA, CA 92705-4720

TELEPHONE: (714) 667-3600
FAX: (714) 372-0749

COUNTY OF ORANGE
HEALTH CARE AGENCY

PUBLIC HEALTH
DIVISION OF ENVIRONMENTAL HEALTH

January 5, 1998

Steve Keile
GMC Delco Remy
1201 North Magnolia Avenue
P. O. Box 3190
Anaheim, CA 92801

Subject: Lead (Pb)-Contaminated Soil

Re: Delco Remy Facility
1201 North Magnolia Avenue
Anaheim, CA 92801
OCHCA Case # 88IC80

Dear Mr. Keile:

Please be advised that this Agency's records show that mitigation of the subject contamination in the "northwest field" of the above-referenced location has not yet been implemented. In my telephone conversation with you in January 1995, you stated that Delco Remy was awaiting DTSC's decision on a Pb target cleanup level, and that you would inform this Agency as soon as the same had been received. As of this date, this office has no information on the status of this facility's soil mitigation effort. Please note that the DTSC has come up with a total Pb cleanup level for soil in residential areas of 130 mg/kg, but has not given any specific value for industrial sites. The US EPA-Region 9 Preliminary Remediation Goals (PRG) Tables [August 1996], however, provides a total Pb cleanup goal for industrial sites of 1,000 mg/kg, which this Agency has used to grant case closures to sites with Pb contamination similar to Delco Remy's.

It is suggested that you consider this 1,000 mg/kg Pb as target remediation goal for the mitigation of Pb-impacted soil at Delco Remy's "northwest field", and provide this office with an updated proposal for soil remediation for review.

If you have any questions regarding this matter, please contact me at (714) 667-3717.

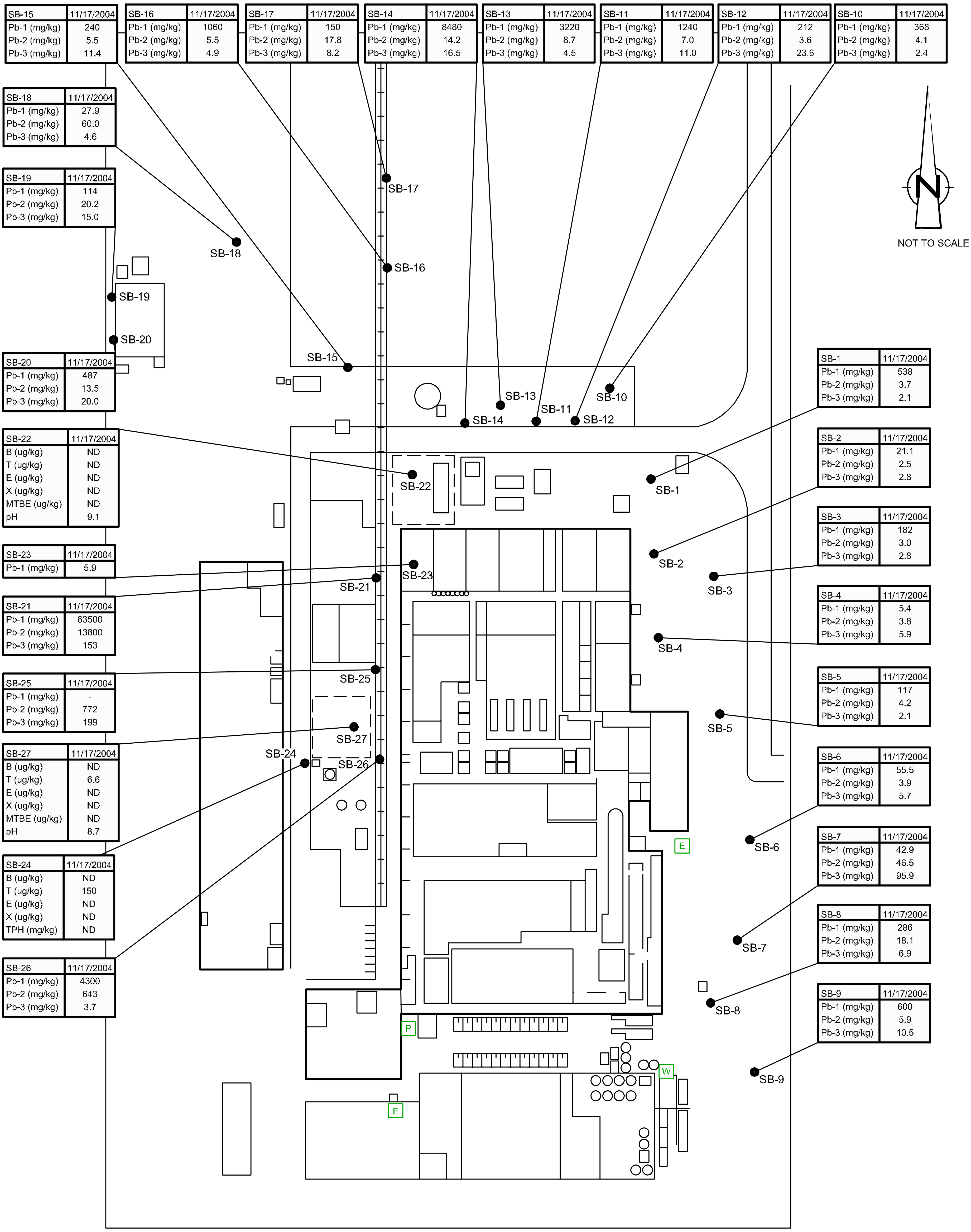
Sincerely,

Luis Lodrigueza
Hazardous Waste Specialist
Hazardous Materials Management Section
Environmental Health Division

LL:

cc: Robert Holub, Santa Ana Regional Water Quality Control Board
William J. Diekmann, O. C. Supervising Hazardous Waste Specialist

IC Delco Remy soil mitigation/LAL.doc 3



LEGEND

RAILROAD SPUR

SB-1 SOIL BORING LOCATIONS

Pb-1 0 to 6 inches bgs

Pb-2 12 to 18 inches bgs

Pb-3 24 to 30 inches bgs

TABLE OF CRITERIA

Pb	LEAD
TPH	TOTAL PETROLEUM HYDROCARBONS
B	BENZENE
T	TOLUENE
E	ETHYL BENZENE
X	TOTAL XYLENES
MTBE	METHYL-TERT-BUTYL-ETHER
pH	POTENTIAL OF HYDROGEN (ACIDITY/ALKALINITY)

SAMPLE LOCATION

SAMPLE DATE

SB-27	11/17/2004
B (ug/kg)	ND
T (ug/kg)	6.6
E (ug/kg)	ND
X (ug/kg)	ND
MTBE (ug/kg)	ND
pH	8.7

PARAMETER

figure 4

ANALYTICAL DATA SUMMARY
DELPHI CORPORATION
ANAHEIM BATTERY OPERATIONS
Anaheim, California

37616-04(006)GN-DE004 JAN 05/2005

Dames & Moore

Executive Offices
445 South Figueroa Street, Suite 3500
Los Angeles, California 90071
(213) 683-1560 TWX: 910-321-4299
Cable address: DAMEMORE

January 23, 1985

Delco-Remy
1201 North Magnolia
Anaheim, California 92803

Attention: Mr. David Hornyak

Gentlemen:

Work Plan
Underground Tank Leak Detection and Monitoring Program
Anaheim, California
For Delco-Remy

Dames & Moore is pleased to present this work plan for the development and implementation of an underground storage tank leak detection and monitoring program at your Anaheim Plant.

We anticipate that the field planning and drilling efforts will require approximately two weeks. Results of chemical analysis should be available within three weeks of receipt of the samples. A draft report of the findings will be submitted to you for review within three weeks of receipt of the results of chemical testing.

Dames & Moore will be available to meet with you and the Orange County Health Department (OCHD) staff to discuss the findings of the investigation. We have found that it is very beneficial, as well as appreciated, to present a summary of the findings to the OCHD staff prior to their review. In addition, we will be available to meet with the OCHD staff to discuss their comments on the report of the findings.

We trust this work plan satisfies your current needs. Please contact us should you have any questions at (805) 963-9676.

Very truly yours,

DAMES & MOORE

Thomas A. Vinckier
Associate

Lawrence F. Voors
Project Manager

TAV:LFV:sms

Attachments

UNDERGROUND STORAGE LEAK DETECTION AND MONITORING PROGRAM

INTRODUCTION

This work plan presents our proposed underground storage tank monitoring program to provide positive or negative evidence regarding the integrity of seven underground tanks and one sump at the Delco-Remy Plant in Anaheim, California. The program is designed to meet the intent of the draft guidelines set forth by the State of California and to be adopted by Orange County Health Department. We believe this plan will adequately assess the integrity of the underground facilities.

BACKGROUND

On 18 January, the state Water Resources Control Board (WRCB) adopted the regulations for underground tanks. There are 8 monitoring options that local agencies can choose from (i.e., city or county) for underground tanks depending on the size of the tank, whether or not the tank owner is a small business, depth to ground water, the usability of the ground water, and whether or not the tank contents are motor vehicle fuels. These are:

1. Monthly tank testing.

2. Vadose zone monitoring (vapor or liquid), ground water monitoring, and soil sampling (during installation of the well).

3. Vadose zone monitoring, soil sampling, annual tank testing (option only acceptable if ground water is greater than 100 ft or less than 100 ft and unusable).

4. Ground water monitoring monthly and soil sampling (option only acceptable if ground water is less than 30 ft and unusable).

5. Inventory reconciliation, tank testing annually, and pipe leak detection system (likely alternative for gasoline terminals; option only acceptable for motor fuels).

6. Inventory reconciliation, vadose zone monitoring, or ground water monitoring semi-annually with lab analysis of water (motor fuels only as above).

7. Tank gauging weekly and annual tank testing (option only acceptable for small tanks of about 2,000 gallons or so).

8. Small businesses and government agencies can get a variance.

There are eight tanks located within the plant boundaries as shown on Figure 1. Tanks 1 through 4 are 19,000 gallon tanks containing Number 2 diesel fuel. Tanks 5 and 6 are 12,000 gallon tanks containing waste oil and caustic. Tank 7 is a 500 gallon tank containing gasoline, and Tank 8 is of unknown capacity and formerly contained waste oil but is no longer in use. Because each tank or group of tanks presents a different set of conditions, a different monitoring alternative as provided by the draft regulations is proposed for each case.

WORK PLAN

The initial phase of the investigation will be the review of information for existing wells within one mile of the site as specified in the draft regulations, Section 2648 Paragraph(p). An initial review of the available literature (State of California, 1932; Poland and Piper, 1956; Orange County Water District, 1984) indicates that ground water occurs in a confined condition at a depth of approximately 100 ft with a southwest gradient. If we are unable to substantiate this preliminary estimate through further review of well data from the vicinity of the facility, it will be necessary to complete one exploratory boring to a depth of 100 ft.

Given the site conditions and monitoring options contained in the draft regulations, we have developed various options for the leak detection and monitoring program. These options are discussed below:

Tanks 1, 2, 3, 4 - Diesel Fuel

Monitoring Alternative #5.

Inventory Reconciliation, Tank Testing and Pipeline Leak Detectors. This option would be implemented if the system is currently metered or if it is feasible to install metering for through put and fluid levels that satisfies the accuracy requirements of the regulations (100 gal. plus 0.15% of throughput).

Monitoring Alternative #6.

Inventory Reconciliation, Tank Testing, Pipeline Leak Detectors, Soil Testing, Vadose Zone Monitoring or Groundwater Monitoring. This option would be implemented if the accuracy required for Option 1 is not possible and daily inventory reconciliation is preferred to daily vadose zone monitoring. Because the tanks are located on a cement pad and are in an area of limited access, we would recommend three borings to implement the vadose zone or ground water monitoring; one boring within the back fill on the north side of the tanks completed to the pad, or 5 ft below the pad, if the pad is not encountered in the boring; one boring within the backfill on the west side completed to the pad (there is a concrete retaining wall along the west side of this tank group that is tied to the pad upon which the tanks rest). One boring, if necessary, outside the retaining wall as near as possible to the southwest (down gradient) corner of the tank group and completed 20 ft below ground water level if ground water is less than 100 ft from the surface.

Tanks 5 and 6 - Waste Flux Oil and Caustic

Monitoring Alternative #3.

Vadose Zone Monitoring, Soil Sampling, and Tank Testing. This option would be implemented if ground water is at a depth 100 ft or greater. Two borings are proposed for this option. One within the backfill on the east side of the tanks completed to the pad on which the tanks rest, and one to the southwest of the tanks off the pad. This second boring would be advanced to 100 ft if the groundwater level cannot be adequately established from existing data, or to 20 ft below the water table if the ground water level is within 100 ft of the surface. If ground water is not encountered above 100 ft, the boring would be sealed to 5 ft below the pad level and completed as a vadose zone monitoring well.

Monitoring Alternative #2b.

Vadose Zone Monitoring, Ground Water Monitoring, and Soils Sampling. This option would be implemented if the groundwater level is expected or shown to occur between 50 and 100 ft of the surface. The two borings as described for Option 1 would be utilized for this option as well.

Tank 7 - Gasoline, 500 Gallons

Monitoring Alternative #5.

Inventory Reconciliation, Tank Testing, Pipeline Leak Detection. If approved metering already exists or can be installed on this tank, inventory reconciliation should be utilized for monitoring.

Monitoring Alternative #3.

Vadose Zone Monitoring, Soils Sampling, Tank Testing. This option would be implemented if inventory reconciliation is not possible and ground water is greater than 100 ft. One boring within the backfill or as close to the tank as possible would be used for this option. The boring would be to a depth of 5 ft below the bottom of the tank.

Monitoring Alternative #2.

Vadose Zone Monitoring, Ground Water Monitoring, and Soil Sampling. This option would be implemented if ground water was found between 50 and 100 ft of the surface. One boring southwest (downgradient) from the tank would be instituted for this option. The boring would be completed 20 ft below the water table.

Tank 8 - Unused

It is recommended that this tank be permanently closed in place as specified in Section 2672 paragraph(c) of the draft regulations. This would require the removal of any residual material in the tank, the filling of the tank with an inert solid and the completion of one boring adjacent to the tank for soils sampling.

SUMMARY OF PROPOSED BORINGS

Boring #1 — Vadose Zone Monitoring Well, within backfill, depth 11 ft. if terminated on slab, 16 ft if slab is missed.

Boring #2 — Vadose Zone Monitoring Well within backfill, depth 11 ft terminated on slab.

Boring #3 — Ground Water/Vadose Zone Monitoring Well. This boring would only be done if boring #5 found ground water within 100 ft. If ground water is within 100 ft this boring would be terminated 20 ft below the water level.

Boring #4 — Vadose Zone Monitoring well within backfill, depth 14.5 ft terminated on slab.

Boring #5 — Vadose Zone/Ground Water Monitoring Well. If the review of existing well data is not sufficient to determine the ground water level on the site, this boring would be to a depth of 100 ft. If ground water is encountered the boring would be completed as a ground water monitoring well. If no ground water is encountered the boring would be sealed to 20 ft and completed as a vadose zone monitoring well.

Boring #6 (Optional) — Vadose Zone/Ground Water Monitoring Well. This boring would be done only if Inventory Reconciliation were not possible. If ground water is not encoutnered in Boring 5, then Boring 6 would be a Vadose Zone Monitoring Well completed to a depth of 20-25 ft. If ground water is encountered in Boring 5, Boring 6 would be advanced to 20 ft below the water level and would be completed as a combination Vadose Zone/Ground Water Monitoring Well.

Boring #7 Soil Sampling Boring. This boring would be to a depth of 20-25 ft for soil sampling to satisfy closure requirements.

Soil sampling would be done in each boring as required by the draft regulations, i.e., every 5 ft beginning at the surface.

PROGRAM ELEMENTS

Health and Safety Plan

A site-specific Health and Safety Plan will be developed by Dames & Moore for the project site. Basically, the plan: (1) identifies and describes the potentially hazardous substances that may be encountered during drilling; (2) specifies protective equipment for onsite activities; and (3) outlines measures to be implemented in the event of an emergency. All onsite personnel (including subcontractors) are required to review and understand the Health and Safety Plan prior to commencement of the site investigation.

Soil Sampling and Monitoring Well Installation

Eight underground tanks are currently present at the Delco-Remy facility. These facilities consist of (refer to Figure 1 for tank location and designation):

- Four 19,000 gallon tanks of fuel oil (No. 2 diesel)
- Two 12,000 gallon tanks for waste oil and caustic
- A 450 to 550-gallon gasoline tank
- A tank of unknown capacity which receives waste oil.

All borings will be advanced under the technical supervision of a Dames & Moore geologist. Soil samples will be obtained at 5-ft intervals beginning at the ground surface and continuing down to the water table. Sampling will be accomplished using a Dames & Moore U-type sampler fitted with stainless steel or brass sampling tubes. Sample ends will be capped with foil, sealed in a plastic sample bag, and placed in a PVC sample tube with plastic end caps. All samples and appropriate chain-of-custody forms will be placed in an ice chest cooled with blue ice, and shipped to the analytical laboratory by overnight courier. Augers and samplers will be steam cleaned between borings to minimize the possibility of cross contamination.

The boreholes will be completed as groundwater or vadose zone monitoring wells utilizing 4-inch diameter schedule 40 PVC casing and slotted screen. The screened portion of each well will extend from 5 ft above the water table 20 ft into the saturated zone. A filter sand will be installed to above the top of the screened interval, above which a 3- to 4-ft-thick bentonite seal will be emplaced. The remaining well annulus will be completed with a cement/ bentonite slurry and encased in a protective cover inside a christy box or fill ring at the surface.

If, at any time in the future, monitoring data indicate that a product recovery program is required at the site, then an appropriate recovery system would be designed. To be effective, such a system must be designed based on a thorough understanding of the mode of occurrence and extent of the leaked product, and the behavior of the material in the soil materials present beneath the site.

Analytical Program

A composite soil sample from each boring will be prepared for chemical testing by combining an aliquot of every sample from that boring. The composite soil samples, as well as water samples from each well, will be analyzed for oil and grease and/or gasoline as specified in Table 1. All samples will be prepared, handled, stored, and analyzed in accordance with EPA or California Department of Health Services (DHS) procedures. This analytical program has been selected on the basis of information provided by you regarding the type of material stored in the underground tanks.

Report of Investigation

A report summarizing the leak detection program and the analytical results will be presented within three weeks of receipt of the analytical data. This report will include a summary or discussions of the following:

- A map showing the location and elevation of all soil borings and monitoring wells with respect to the location of the underground tanks and other pertinent facilities;
- Investigative methods;
- Geologic logs and well completion details of the borings/wells;
- A summary of the subsurface geologic conditions and other pertinent subsurface conditions based on data obtained from the boring and sampling program;
- Groundwater conditions beneath the site as determined from available published reports, water level measurements, and the results of our drilling program; and
- Analytical results and methods.

Dames & Moore

TABLE 1

ANALYTICAL PROGRAM

Well/Boring	Constituent	Sample Type
1	Fuel Oil	S
2	Fuel Oil	S
3	Fuel Oil	S,W
4	Oil, Lead	S
5	Oil, Lead	S,W
6	Gasoline	S,W
7	Oil	S

S = Soil Sample
W = Water Sample

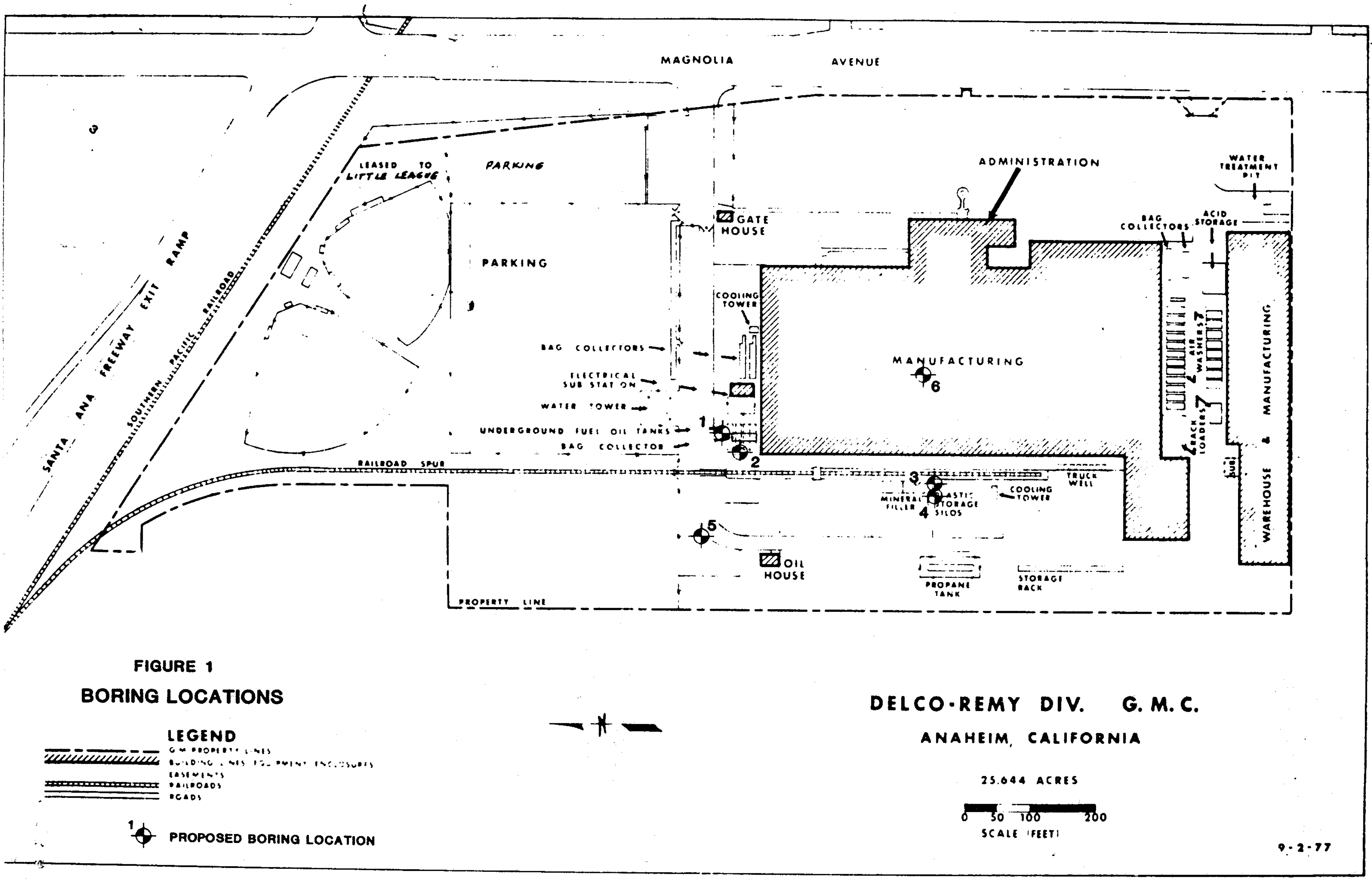
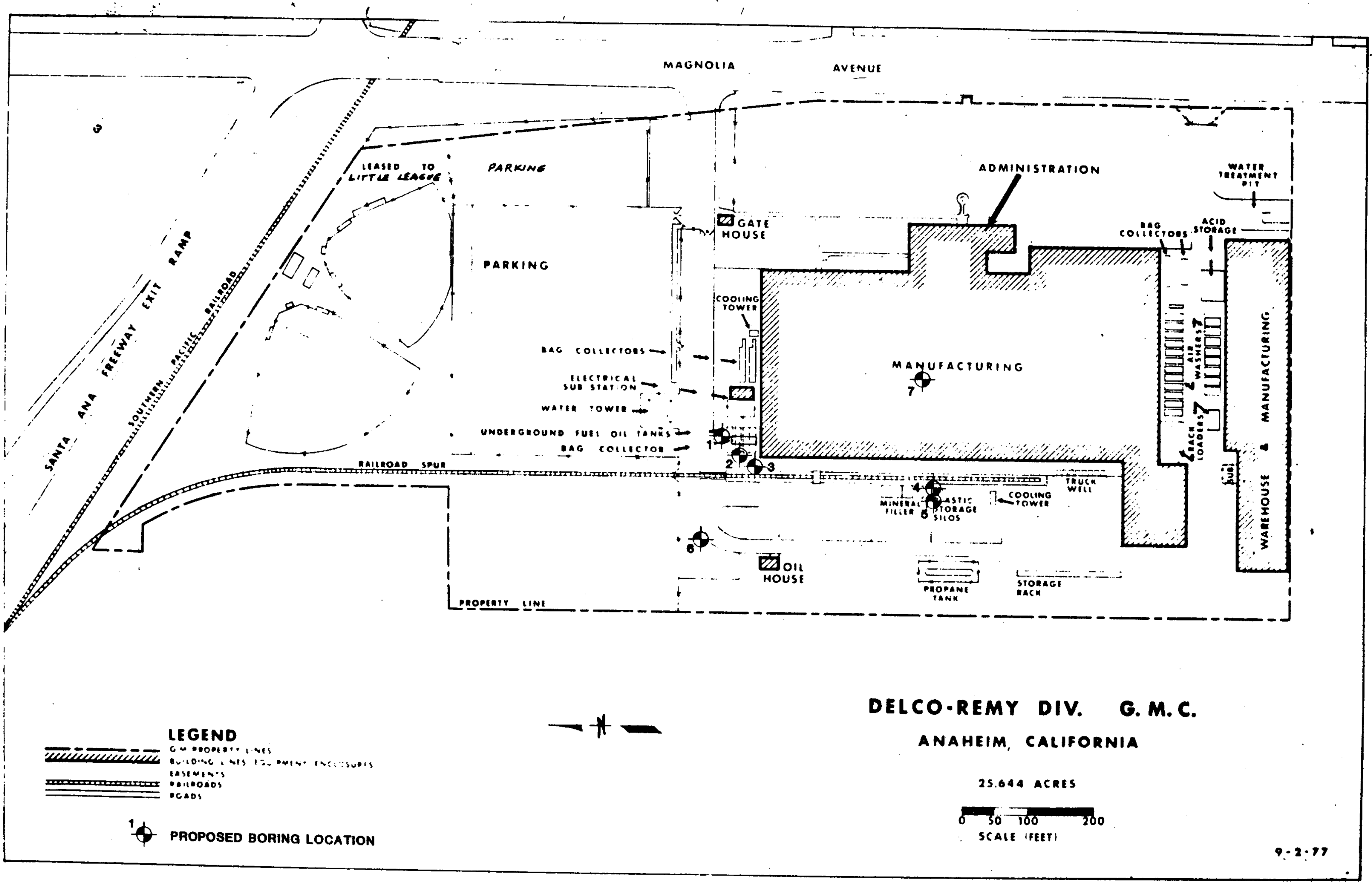


FIGURE 1

BORING LOCATIONS


MAGNOLIA AVENUE
LEASED TO LITTLE LEAGUE
PARKING
PARKING
GATE HOUSE
ADMINISTRATION
WATER TREATMENT PIT
BAG COLLECTORS
ACID STORAGE
COOLING TOWER
BAG COLLECTORS
ELECTRICAL SUB STATION
WATER TOWER
UNDERGROUND FUEL OIL TANKS
BAG COLLECTOR
MANUFACTURING
AIR WASHERS
RACK LOADERS
WAREHOUSE & MANUFACTURING
SUB
RAILROAD SPUR
TRUCK WELL
COOLING TOWER
MINERAL FILLER
PLASTIC STORAGE SILOS
OIL HOUSE
PROPANE TANK
STORAGE RACK
PROPERTY LINE
SANTA ANA FREEWAY EXIT RAMP
SOUTHERN PACIFIC RAILROAD
LEGEND
GM PROPERTY LINES
BUILDING LINES EQUIPMENT ENCLOSURES
EASEMENTS
RAILROADS
ROADS
PROPOSED BORING LOCATION
DELCO-REMY DIV. G. M. C.
ANAHEIM, CALIFORNIA
25.644 ACRES
0 50 100 200
SCALE (FEET)
9-2-77

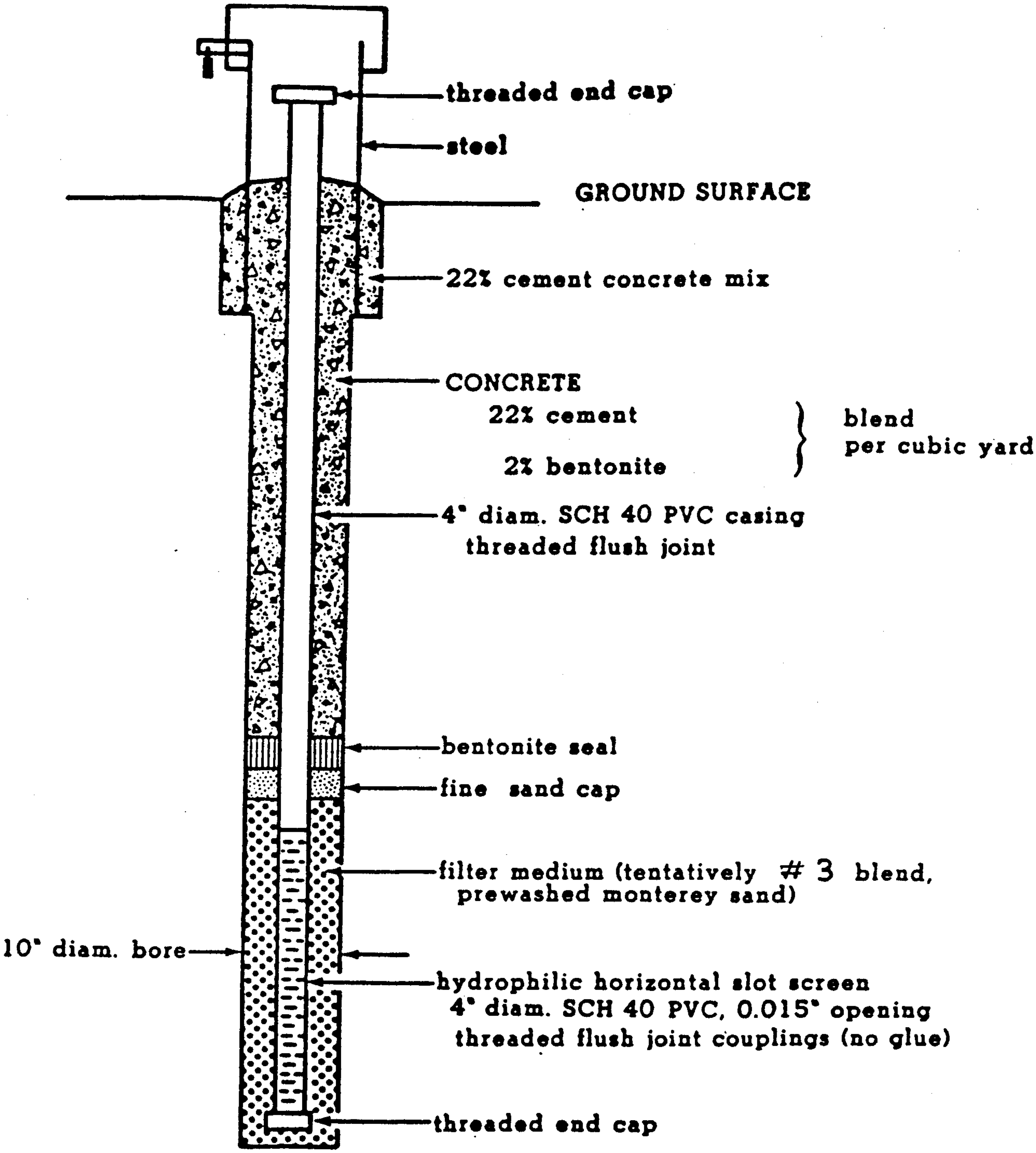


Figure 2

Generic Monitoring Well Design
Recommended Minimum Specifications

Dames & Moore

WORK PLAN
UNDERGROUND TANK LEAK DETECTION
AND MONITORING PROGRAM
ANAHEIM, CALIFORINA
FOR DELCO-REMY

Dames & Moore

LOS ANGELES, CALIFORNIA